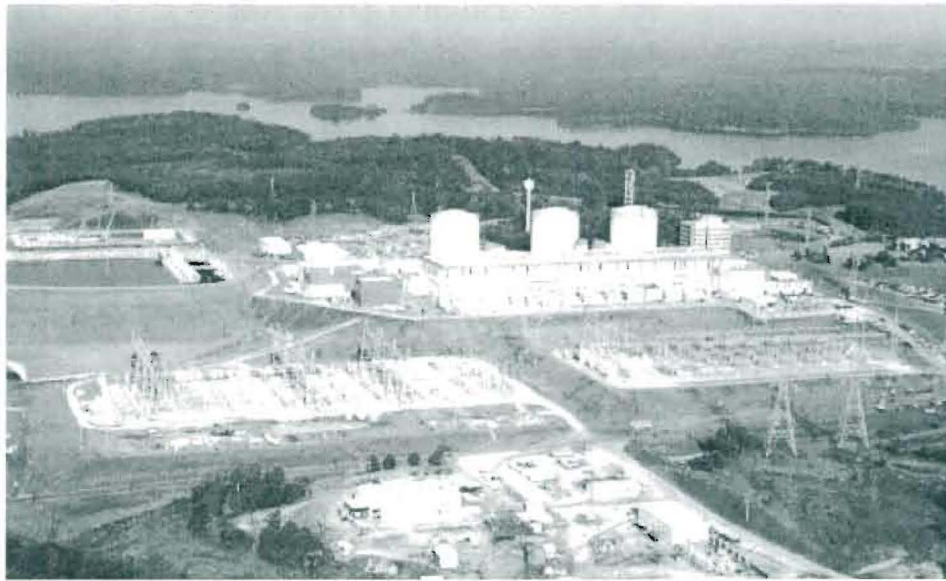


**DECOMMISSIONING COST ANALYSIS**  
**for the**  
**OCONEE NUCLEAR STATION**



*prepared for*



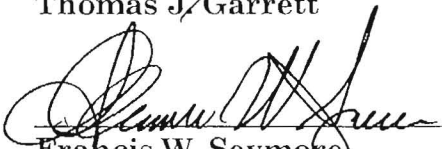
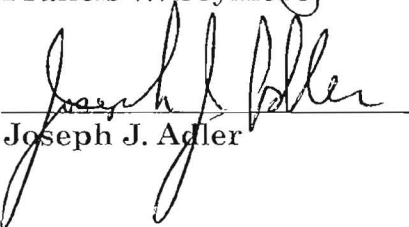
**Duke Energy Corporation**

*prepared by*

**TLG Services, Inc.**  
**Bridgewater, Connecticut**

**December 2008**

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Quality Assurance Manager	 _____ Joseph J. Adler	<u>12/22/08</u> Date



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**REVISION LOG**

<b>No.</b>	<b>CRA No.</b>	<b>Date</b>	<b>Item Revised</b>	<b>Reason for Revision</b>
0		12-22-2008		Final Issue

## EXECUTIVE SUMMARY

This report presents estimates of the cost to decommission the Oconee Nuclear Station (Oconee) for the selected decommissioning scenarios following the scheduled cessation of plant operations. The analysis relies upon site-specific, technical information from an evaluation prepared in 2003,<sup>[1]</sup> updated to reflect current assumptions pertaining to the disposition of the nuclear plant and relevant industry experience in undertaking such projects. The current estimates are designed to provide Duke Energy Corporation, (Duke Energy) with sufficient information to assess the plant owners' financial obligations, as they pertain to the eventual decommissioning of the nuclear plant.

The primary goal of the decommissioning is the removal and disposal of the contaminated systems and structures so that the plant's operating licenses can be terminated. The analysis recognizes that spent fuel will be stored at the site in the plant's storage pools and/or in an independent spent fuel storage installation (ISFSI) until such time that it can be transferred to the U.S. Department of Energy (DOE). Consequently, the estimates also include those costs to manage and subsequently decommission these interim storage facilities.

The currently projected cost to decommission the station, assuming the DECON alternative, is estimated at \$1,571.6 million, as reported in 2008 dollars. An estimate for the SAFSTOR alternative is also provided.

The estimates are based on numerous fundamental assumptions, including regulatory requirements, project contingencies, low-level radioactive waste disposal practices, high-level radioactive waste management options, and site restoration requirements. The estimates incorporate a minimum cooling period for the spent fuel that resides in the storage pools when operations cease. Once sufficiently cooled, the spent fuel is transferred to the DOE, along with the spent fuel stored at the ISFSI during plant operations. The estimates also include the dismantling of site structures and non-essential facilities and the limited restoration of the site.

### Alternatives and Regulations

The ultimate objective of the decommissioning process is to reduce the inventory of contaminated and activated material so that the license can be terminated. The Nuclear Regulatory Commission (NRC or Commission) provided initial decommissioning requirements in its rule adopted on June 27, 1988.<sup>[2]</sup> In this rule, the

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<sup>1</sup> "Decommissioning Cost Analysis for the Oconee Nuclear Station," Document No. D03-1478-004, Rev. 0, TLG Services, Inc., February 2004

<sup>2</sup> U.S. Code of Federal Regulations, Title 10, Parts 30, 40, 50, 51, 70 and 72 "General Requirements for

NRC set forth financial criteria for decommissioning licensed nuclear power facilities. The regulations addressed planning needs, timing, funding methods, and environmental review requirements for decommissioning. The rule also defined three decommissioning alternatives as being acceptable to the NRC: DECON, SAFSTOR, and ENTOMB.

DECON is defined as "the alternative in which the equipment, structures, and portions of a facility and site containing radioactive contaminants are removed or decontaminated to a level that permits the property to be released for unrestricted use shortly after cessation of operations."<sup>[3]</sup>

SAFSTOR is defined as "the alternative in which the nuclear facility is placed and maintained in a condition that allows the nuclear facility to be safely stored and subsequently decontaminated (deferred decontamination) to levels that permit release for unrestricted use."<sup>[4]</sup> Decommissioning is to be completed within 60 years, although longer time periods will be considered when necessary to protect public health and safety.

ENTOMB is defined as "the alternative in which radioactive contaminants are encased in a structurally long-lived material, such as concrete; the entombed structure is appropriately maintained and continued surveillance is carried out until the radioactive material decays to a level permitting unrestricted release of the property."<sup>[5]</sup> As with the SAFSTOR alternative, decommissioning is currently required to be completed within 60 years.

The 60-year restriction has limited the practicality for the ENTOMB alternative at commercial reactors that generate significant amounts of long-lived radioactive material. In 1997, the Commission directed its staff to re-evaluate this alternative and identify the technical requirements and regulatory actions that would be necessary for entombment to become a viable option. The resulting evaluation provided several recommendations, however, rulemaking has been deferred pending the completion of additional research studies, for example, on engineered barriers.

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Decommissioning Nuclear Facilities," Nuclear Regulatory Commission, Federal Register Volume 53, Number 123 (p 24018 et seq.), June 27, 1988

<sup>3</sup> Ibid. Page FR24022, Column 3

<sup>4</sup> Ibid.

<sup>5</sup> Ibid. Page FR24023, Column 2



In 1996, the NRC published revisions to the general requirements for decommissioning nuclear power plants to clarify ambiguities and codify procedures and terminology as a means of enhancing efficiency and uniformity in the decommissioning process.<sup>[6]</sup> The amendments allow for greater public participation and better define the transition process from operations to decommissioning. Regulatory Guide 1.184, issued in July 2000, further described the methods and procedures acceptable to the NRC staff for implementing the requirements of the 1996 revised rule relating to the initial activities and major phases of the decommissioning process. The costs and schedules presented in this analysis follow the general guidance and processes described in the amended regulations. The format and content of the estimates is also consistent with the recommendations of Regulatory Guide 1.202, issued in February 2005.<sup>[7]</sup>

### Methodology

The methodology used to develop the estimates described within this document follows the basic approach originally presented in the cost estimating guidelines<sup>[8]</sup> developed by the Atomic Industrial Forum (now Nuclear Energy Institute). This reference describes a unit factor method for determining decommissioning activity costs. The unit factors used in this analysis incorporate site-specific costs and the latest available information on worker productivity in decommissioning.

The estimates also reflect lessons learned from TLG's involvement in the Shippingport Station decommissioning, completed in 1989, and the decommissioning of the Cintichem reactor, hot cells and associated facilities, completed in 1997. In addition, the planning and engineering for the Pathfinder, Shoreham, Rancho Seco, Trojan, Yankee Rowe, Big Rock Point, Maine Yankee, Humboldt Bay-3, Connecticut Yankee and San Onofre-1 nuclear units have provided additional insight into the process, the regulatory aspects, and technical challenges of decommissioning commercial nuclear units.

An activity duration critical path is used to determine the total decommissioning program schedule. The schedule is relied upon in calculating the carrying costs, which include program management, administration, field engineering, equipment rental, and support services, such as quality control and security.

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<sup>6</sup> U.S. Code of Federal Regulations, Title 10, Parts 2, 50, and 51, "Decommissioning of Nuclear Power Reactors," Nuclear Regulatory Commission, Federal Register Volume 61, (p 39278 et seq.), July 29, 1996

<sup>7</sup> "Standard Format and Content of Decommissioning Cost Estimates for Nuclear Power Reactors," Regulatory Guide 1.202, U.S. Nuclear Regulatory Commission, February 2005

<sup>8</sup> T.S. LaGuardia et al., "Guidelines for Producing Commercial Nuclear Power Plant Decommissioning Cost Estimates," AIF/NESP-036, May 1986



### Contingency

Consistent with cost estimating practice, contingencies are applied to the decontamination and dismantling costs developed as "specific provision for unforeseeable elements of cost within the defined project scope, particularly important where previous experience relating estimates and actual costs has shown that unforeseeable events which will increase costs are likely to occur."<sup>9</sup> The cost elements in the estimates are based on ideal conditions; therefore, the types of unforeseeable events that are almost certain to occur in decommissioning, based on industry experience, are addressed through a percentage contingency applied on a line-item basis. This contingency factor is a nearly universal element in all large-scale construction and demolition projects. It should be noted that contingency, as used in this analysis, does not account for price escalation and inflation in the cost of decommissioning over the remaining operating life of the station.

Contingency funds are expected to be fully expended throughout the program. As such, inclusion of contingency is necessary to provide assurance that sufficient funding will be available to accomplish the intended tasks.

### Low-Level Radioactive Waste Disposal

The contaminated and activated material generated in the decontamination and dismantling of a commercial nuclear reactor is classified as low-level (radioactive) waste, although not all of the material is suitable for "shallow-land" disposal. With the passage of the "Low-Level Radioactive Waste Policy Act" in 1980,<sup>10</sup> and its Amendments of 1985,<sup>11</sup> the states became ultimately responsible for the disposition of low-level radioactive waste generated within their own borders.

South Carolina is a member of the three-state Atlantic Interstate Low-Level Radioactive Waste Management Compact, formed after South Carolina formally joined the Northeast Regional Compact. The Barnwell Low-Level Radioactive Waste Management Facility, located in South Carolina, is expected to be available to support the decommissioning of Oconee. It is also assumed that Duke Energy can access other disposal sites should it prove cost-effective. As such, rate schedules for both the Barnwell and EnergySolutions's facility in Clive, Utah are used to generate disposal costs.

For the purpose of this analysis, the EnergySolutions' facility is used as the basis for estimating the disposal cost for the lowest level and majority of the radioactive waste

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<sup>9</sup> Project and Cost Engineers' Handbook, Second Edition, American Association of Cost Engineers. Marcel Dekker, Inc., New York, New York, p. 239.

<sup>10</sup> "Low-Level Radioactive Waste Policy Act of 1980," Public Law 96-573, 1980.

<sup>11</sup> "Low-Level Radioactive Waste Policy Amendments Act of 1985," Public Law 99-240, 1986.

(Class A <sup>112</sup>). EnergySolutions does not have a license to dispose of the more highly radioactive waste (Classes B and C), for example, generated in the dismantling of the reactor vessel. The disposal cost for this material is based upon the rate schedule for the Barnwell facility.

The dismantling of the components residing closest to the reactor core generates radioactive waste considered unsuitable for shallow-land disposal (i.e., low-level radioactive waste with concentrations of radionuclides that exceed the limits established by the NRC for Class C radioactive waste (GTCC)). The Low-Level Radioactive Waste Policy Amendments Act of 1985 assigned the federal government the responsibility for the disposal of this material. The Act also stated that the beneficiaries of the activities resulting in the generation of such radioactive waste bear all reasonable costs of disposing of such waste. However, to date, the federal government has not identified a cost for disposing of GTCC or a schedule for acceptance. As such, the GTCC radioactive waste has been packaged and disposed of as high-level waste, at a cost equivalent to that envisioned for the spent fuel.

For purposes of this study, GTCC is packaged in the same canisters used for spent fuel. The GTCC material is either stored with the spent fuel at the ISFSI or shipped directly to a DOE facility as it is generated (depending upon the timing of the decommissioning and whether the spent fuel has been removed from the site prior to the start of decommissioning).

A significant portion of the waste material generated during decommissioning may only be potentially contaminated by radioactive materials. This waste can be analyzed on site or shipped off site to licensed facilities for further analysis, for processing and/or for conditioning/recovery. Reduction in the volume of low-level radioactive waste requiring disposal in a licensed low-level radioactive waste disposal facility can be accomplished through a variety of methods, including analyses and surveys or decontamination to eliminate the portion of waste that does not require disposal as radioactive waste, compaction, incineration or metal melt. The estimates for Oconee reflect the savings from waste recovery/volume reduction.

#### High-Level Radioactive Waste Management

Congress passed the “Nuclear Waste Policy Act”<sup>1131</sup> (NWPA) in 1982, assigning the federal government’s long-standing responsibility for disposal of the spent nuclear fuel created by the commercial nuclear generating plants to the DOE. The NWPA provided that DOE would enter into contracts with utilities in which DOE would promise to

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<sup>12</sup> U.S. Code of Federal Regulations, Title 10, Part 61, “Licensing Requirements for Land Disposal of Radioactive Waste”

<sup>13</sup> “Nuclear Waste Policy Act of 1982 and Amendments,” DOE’s Office of Civilian Radioactive Management, 1982

take the utilities' spent fuel and high-level radioactive waste and utilities would pay the cost of the disposition services for that material. The NWPA, along with the individual contracts with the utilities, specified that the DOE was to begin accepting spent fuel by January 31, 1998.

Since the original legislation, the DOE has announced several delays in the program schedule. By January 1998, the DOE had failed to accept any spent fuel or high level waste, as required by the NWPA and utility contracts. Delays continue and, as a result, generators have initiated legal action against the DOE in an attempt to obtain compensation for DOE's breach of contract.

Operation of DOE's yet-to-be constructed repository is contingent upon the review and approval of the facility's license application by the NRC and the successful resolution of pending litigation. The DOE submitted its license application to the NRC on June 3, 2008, seeking authorization to construct the repository at Yucca Mountain, Nevada. Assuming a timely review and adequate funding, the DOE expects that receipt of fuel could begin as early as 2017,<sup>[14]</sup> although 2020 may be more likely according to the director of the DOE's waste program.<sup>[15]</sup>

It is generally necessary that spent fuel be cooled and stored for a minimum period at the generating site prior to transfer. As such, the NRC requires that licensees establish a program to manage and provide funding for the management of all irradiated fuel at the reactor site until title of the fuel is transferred to the Secretary of Energy, pursuant to 10 CFR Part 50.54(bb).<sup>[16]</sup> This funding requirement is fulfilled through inclusion of certain cost elements in the decommissioning estimates, for example, associated with the isolation and continued operation of the spent fuel pools and the ISFSI.

According to the spent fuel management plan, at shutdown the spent fuel pools are expected to contain freshly discharged assemblies (from the most recent refueling cycles) as well as the final reactor core. Over the following twelve years the assemblies are packaged into multipurpose canisters for transfer to the DOE. It is assumed that this period provides the necessary cooling for the final core to meet the transport requirements for decay heat.

DOE's contracts with utilities order the acceptance of spent fuel from utilities based upon the oldest fuel receiving the highest priority. For purposes of this analysis,

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<sup>14</sup> "DOE Announces Yucca Mountain License Application Schedule", U.S. Department of Energy's Office of Public Affairs, Press Release July 19, 2006

<sup>15</sup> "Testimony of Edward Sproat", Director, Office of Civilian Radioactive Waste Management, before a U.S. House of Representatives subcommittee on the status of Yucca Mountain, July 15, 2008.

<sup>16</sup> U.S. Code of Federal Regulations, Title 10, Part 50, "Domestic Licensing of Production and Utilization Facilities," Subpart 54 (bb), "Conditions of Licenses."

acceptance of commercial spent fuel by the DOE is expected to begin in 2017 (in accordance with DOE's latest published schedule). The first assemblies removed from the Oconee site are assumed to be in 2018. With an estimated, maximum rate of transfer of 3,000 metric tons of uranium (MTU)/year, completion of the removal of fuel from the site is projected to be in the year 2050. Consequently, costs are included within the estimates for the long-term caretaking of the spent fuel at the Oconee site until the year 2050.

An ISFSI, which can be operated under a separate and independent license, has been constructed to support continued plant operations. The facility is not required to support future decommissioning operations, however, there will be spent fuel located at the ISFSI (from plant operations) that will need to be transferred to the DOE during decommissioning. This fuel is assumed to be transferred as the pools are emptied.

Duke Energy's position is that the DOE has a contractual obligation to accept Oconee's fuel earlier than the projections set out above consistent with its contract commitments. No assumption made in this study should be interpreted to be inconsistent with this claim. However, at this time, including the cost of storing spent fuel in this study is the most reasonable approach because it insures the availability of sufficient decommissioning funds at the end of the station's life if, contrary to its contractual obligation, the DOE has not performed earlier.

#### Site Restoration

The efficient removal of the contaminated materials at the site may result in damage to many of the site structures. Blasting, coring, drilling, and the other decontamination activities will substantially damage power block structures, potentially weakening the footings and structural supports. Prompt dismantling of site structures (once the facilities are decontaminated) is clearly the most appropriate and cost-effective option. It is unreasonable to anticipate that these structures would be repaired and preserved after the radiological contamination is removed. The cost to dismantle site structures with a work force already mobilized on site is more efficient than if the process is deferred. Site facilities quickly degrade without maintenance, adding additional expense and creating potential hazards to the public and the demolition work force. Consequently, this study assumes that site structures are removed to a nominal depth of three feet below the local grade level wherever possible. The site is then to be graded and stabilized.

#### Summary

The costs to decommission Oconee assumes the removal of all contaminated and activated plant components and structural materials such that the owner may then



have unrestricted use of the site with no further requirements for an operating license. Low-level radioactive waste, other than GTCC waste, is sent to a commercial processor for treatment/conditioning or to a controlled disposal facility.

Decommissioning is accomplished within the 60-year period required by current NRC regulations. In the interim, the spent fuel remains in storage at the site until such time that the transfer to a DOE facility is complete. Once emptied, the storage facilities are also decommissioned.

Both the DECON and SAFSTOR scenarios are described in Section 2. The assumptions are presented in Section 3, along with schedules of annual expenditures. The major cost contributors are identified in Section 6, with detailed activity costs, waste volumes, and associated manpower requirements delineated in Appendices C and D. The major cost components are also identified in the cost summary provided at the end of this section.

The cost elements in the estimates are assigned to one of three subcategories: NRC License Termination, Spent Fuel Management, and Site Restoration. The subcategory "NRC License Termination" is used to accumulate costs that are consistent with "decommissioning" as defined by the NRC in its financial assurance regulations (i.e., 10 CFR Part 50.75). The cost reported for this subcategory is generally sufficient to terminate the unit's operating license, recognizing that there may be some additional cost impact from spent fuel management.

The "Spent Fuel Management" subcategory contains costs associated with the containerization and transfer of spent fuel from the wet storage pools to a DOE transport cask, as well as the transfer the fuel in storage at the ISFSI to the DOE. Costs are included for the operation of the storage pools and the management of the ISFSI until such time that the transfer is complete.

"Site Restoration" is used to capture costs associated with the dismantling and demolition of buildings and facilities demonstrated to be free from contamination. This includes structures never exposed to radioactive materials, as well as those facilities that have been decontaminated to appropriate levels. Structures are removed to a depth of three feet and backfilled to conform to local grade.

It should be noted that the costs assigned to these subcategories are allocations. Delegation of cost elements is for the purposes of comparison (e.g., with NRC financial guidelines) or to permit specific financial treatment (e.g., ARO determinations). In reality, there can be considerable interaction between the activities in the three subcategories. For example, an owner may decide to remove non-contaminated structures early in the project to improve access to highly contaminated facilities or plant components. In these instances, the non-contaminated removal costs could be

reassigned from Site Restoration to an NRC License Termination support activity. However, in general, the allocations represent a reasonable accounting of those costs that can be expected to be incurred for the specific subcomponents of the total estimated program cost, if executed as described.

As noted within this document, the estimates were developed and costs are presented in 2008 dollars. As such, the estimates do not reflect the escalation of costs (due to inflationary and market forces) over the remaining operating life of the plant or during the decommissioning period.

**DECON COST SUMMARY  
DECOMMISSIONING COST ELEMENTS**  
(thousands of 2008 dollars)

Cost Element	Unit 1	Unit 2	Unit 3	Total
Decontamination	10,080	12,148	17,119	39,347
Removal	73,211	<b>75,276</b>	<b>118,973</b>	<b>267,460</b>
Packaging	12,144	<b>12,428</b>	<b>13,244</b>	<b>37,815</b>
Transportation	6,129	<b>6,642</b>	<b>8,194</b>	<b>20,965</b>
Waste Disposal	86,097	<b>88,968</b>	<b>95,945</b>	<b>271,010</b>
Off-site Waste Processing	19,449	<b>20,101</b>	<b>31,808</b>	<b>71,358</b>
Program Management <sup>[1]</sup>	191,212	<b>166,894</b>	<b>229,584</b>	<b>587,690</b>
Utility Site Indirect	17,743	15,826	19,022	52,591
Spent Fuel Pool Isolation	5,409	5,409	7,212	18,031
Spent Fuel Management <sup>[2]</sup>	20,790	19,117	22,382	62,288
Insurance and Regulatory Fees	<b>12,660</b>	10,605	<b>10,601</b>	<b>33,866</b>
Energy	<b>10,154</b>	<b>10,104</b>	<b>10,086</b>	<b>30,344</b>
Characterization and Licensing Surveys	<b>12,827</b>	<b>10,550</b>	<b>12,812</b>	<b>36,188</b>
Property Taxes	<b>7,160</b>	<b>6,519</b>	<b>6,862</b>	<b>20,541</b>
Miscellaneous Equipment	<b>6,603</b>	<b>6,438</b>	<b>6,141</b>	<b>19,182</b>
Miscellaneous Site Services	0	0	<b>1,811</b>	<b>1,811</b>
Total <sup>[3]</sup>	<b>492,457</b>	<b>467,045</b>	<b>612,096</b>	<b>1,571,598</b>

Cost Element				
License Termination	<b>398,112</b>	<b>377,426</b>	<b>468,948</b>	<b>1,244,817</b>
Spent Fuel Management	<b>71,528</b>	<b>67,591</b>	<b>92,515</b>	<b>231,664</b>
Site Restoration	<b>22,487</b>	<b>22,027</b>	<b>60,603</b>	<b>95,117</b>
Total <sup>[3]</sup>	<b>492,457</b>	<b>467,045</b>	<b>612,096</b>	<b>1,571,598</b>

<sup>[1]</sup> Includes engineering and security costs

<sup>[2]</sup> Excludes program management costs (staffing) but includes costs for spent fuel loading/transfer/spent fuel pool O&M and EP fees

<sup>[3]</sup> Columns may not add due to rounding

**SAFSTOR COST SUMMARY  
DECOMMISSIONING COST ELEMENTS**  
(thousands of 2008 dollars)

Cost Element	Unit 1	Unit 2	Unit 3	Total
Decontamination	9,338	9,273	12,090	30,701
Removal	72,536	74,452	117,255	264,243
Packaging	9,020	9,187	9,742	27,949
Transportation	5,106	5,327	6,260	16,694
Waste Disposal	69,540	71,445	76,348	217,334
Off-site Waste Processing	21,821	22,790	35,145	79,756
Program Management (I)	268,845	208,870	255,960	733,676
Utility Site Indirect	23,160	17,810	20,652	61,621
Spent Fuel Pool Isolation	5,409	5,409	7,212	18,031
Spent Fuel Management (II)	20,682	19,009	21,316	61,007
Insurance and Regulatory Fees	34,210	32,043	32,146	98,399
Energy	17,770	17,556	17,892	53,217
Characterization and Licensing Surveys	14,274	11,997	14,259	40,531
Property Taxes	7,880	6,870	7,182	21,932
Miscellaneous Equipment	16,083	16,035	18,466	50,584
Miscellaneous Site Services	0	0	1,811	1,811
<b>Total (III)</b>	<b>595,675</b>	<b>528,074</b>	<b>651,373</b>	<b>1,777,485</b>

Cost Element	Unit 1	Unit 2	Unit 3	Total
License Termination	500,989	435,993	518,504	1,455,486
Spent Fuel Management (III)	64,675	62,588	68,473	195,736
Site Restoration	30,011	29,402	66,760	126,263
<b>Total (III)</b>	<b>595,675</b>	<b>528,074</b>	<b>651,373</b>	<b>1,777,485</b>

- (I) Includes engineering and security costs  
 (II) Direct costs only, excludes program management costs (staffing) but includes costs for spent fuel loading/transfer/spent fuel pool O&M and EP fees  
 (III) Columns may not add due to rounding  
 (IV) Includes percentage of Period 2a (dormancy) plant operating costs until spent fuel pools are emptied, in addition to the direct costs



## **1. INTRODUCTION**

This report presents estimates of the costs to decommission the Oconee Nuclear Station, (Oconee) following a scheduled cessation of plant operations. The analysis relies upon site-specific, technical information from an earlier evaluation prepared in 2003,<sup>[1]\*</sup> updated to reflect current assumptions pertaining to the disposition of the nuclear plant and relevant industry experience in undertaking such projects. The current estimates are designed to provide Duke Energy Corporation (Duke Energy) with sufficient information to assess the plant owners' financial obligations, as they pertain to the eventual decommissioning of the nuclear station. It is not a detailed engineering document, but a financial analysis prepared in advance of the detailed engineering that will be required to carry out the decommissioning.

### **1.1 OBJECTIVES OF STUDY**

The objectives of this study are to prepare comprehensive estimates of the costs to decommission the three nuclear units at Oconee, to provide a sequence or schedule for the associated activities, and to develop waste stream projections from the decontamination and dismantling activities. For the purposes of this study, the shutdown dates for the units are assumed to be February 6, 2033, October 6, 2033 and July 19, 2034, for Units 1, 2 and 3, respectively, based upon the current operating licenses.

### **1.2 SITE DESCRIPTION**

The Oconee nuclear station is located in Oconee County, approximately 35 miles west of Greenville, South Carolina on the shore of Lake Keowee. The station is comprised of three nuclear units and an independent spent fuel storage installation (ISFSI). All three units are essentially identical except for certain auxiliary systems. In particular, one spent fuel pool is shared between Oconee 1 and 2, and a separate spent fuel pool is provided for Oconee 3.

Lake Keowee, created with the construction of the Keowee and Little River Dams, provides both the power source for the Keowee Hydroelectric Station, as well as the heat sink for the nuclear units. Both facilities were planned and constructed concurrently, to the extent that the Oconee intake dike structure forms part of the Keowee lake boundary. The turbine building houses turbine-generator sets for all three units. The pedestal structure for each is independent; only the steel superstructure is common to all three units.

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\* References provided in Section 7 of the document

The nuclear steam supply system (NSSS) for each unit consists of a pressurized water reactor and a two-loop reactor coolant system. The systems were supplied by the Babcock & Wilcox Company and have a referenced core design of 2568 MWt (thermal) with the reactor at rated power and a net dependable capability rating of 860 MWe (electric).

The reactor coolant system is comprised of the reactor vessel, two vertical once-through steam generators, four shaft-sealed reactor coolant pumps, an electrically heated pressurizer and interconnected piping. The system is housed within the reactor or "containment" building, a conventionally reinforced, post-tensioned structure. The building consists of a right circular cylinder and dome, connected to and supported by a massive reinforced concrete foundation slab. The entire interior surface is lined with a ¼ inch thick welded steel plate to assure a high degree of leak tightness.

Heat produced in the reactor is converted to electrical energy by the steam and power conversion system. A turbine-generator converts the thermal energy of steam produced in the steam generators into mechanical shaft power and then into electrical energy. Each unit's turbine generator consists of a tandem (single shaft) arrangement of double-flow high-pressure turbine and three identical double-flow low pressure turbines driving a direct coupled generator at 1800 rpm. The turbines are operated in a closed feedwater cycle, which condenses the steam. The heated feedwater is returned to the steam generators.

The condenser circulating water system removes heat rejected in the main condensers and is the ultimate heat sink for the station. The Little River arm of Lake Keowee is the source of water for the system. Each unit has four condenser circulating water pumps supplying water into a common condenser intake header under the turbine building floor. The condenser discharge is returned to the Keowee River arm of Lake Keowee.

The ISFSI installation consists of concrete bunkers with shield doors and air cooling vents, all for housing the spent fuel. The spent fuel is stored within the concrete bunkers in stainless steel canisters. The ISFSI is licensed as a Title 10 of the Code of Federal Regulations (10 CFR) §72 facility.

### **1.3 REGULATORY GUIDANCE**

The Nuclear Regulatory Commission (NRC or Commission) provided initial decommissioning requirements in its rule "General Requirements for Decommissioning Nuclear Facilities," issued in June 1988.<sup>[2]</sup> This rule set forth financial criteria for decommissioning licensed nuclear power facilities.

The regulation addressed decommissioning planning needs, timing, funding methods, and environmental review requirements. The intent of the rule was to ensure that decommissioning would be accomplished in a safe and timely manner and that adequate funds would be available for this purpose. Subsequent to the rule, the NRC issued Regulatory Guide 1.159, "Assuring the Availability of Funds for Decommissioning Nuclear Reactors,"<sup>[3]</sup> which provided additional guidance to the licensees of nuclear facilities on the financial methods acceptable to the NRC staff for complying with the requirements of the rule. The regulatory guide addressed the funding requirements and provided guidance on the content and form of the financial assurance mechanisms indicated in the rule.

The rule defined three decommissioning alternatives as being acceptable to the NRC: DECON, SAFSTOR, and ENTOMB. The DECON alternative assumes that any contaminated or activated portion of the plant's systems, structures and facilities are removed or decontaminated to levels that permit the site to be released for unrestricted use shortly after the cessation of plant operations. The rule also placed limits on the time allowed to complete the decommissioning process. For SAFSTOR, the process is restricted in overall duration to 60 years, unless it can be shown that a longer duration is necessary to protect public health and safety. The guidelines for ENTOMB are similar, providing the NRC with both sufficient leverage and flexibility to ensure that these deferred options are only used in situations where it is reasonable and consistent with the definition of decommissioning. At the conclusion of a 60-year dormancy period (or longer for ENTOMB if the NRC approves such a case), the site would still require significant remediation to meet the unrestricted release limits for license termination.

The ENTOMB alternative has not been viewed as a viable option for power reactors due to the significant time required to isolate the long-lived radionuclides for decay to permissible levels. However, with rulemaking permitting the controlled release of a site,<sup>[4]</sup> the NRC has re-evaluated this alternative. The resulting feasibility study, based upon an assessment by Pacific Northwest National Laboratory, concluded that the method did have conditional merit for some, if not most reactors. However, the staff also found that additional rulemaking would be needed before this option could be treated as a generic alternative. The NRC had considered rulemaking to alter the 60-year time for completing decommissioning and to clarify the use of engineered barriers for reactor entombments.<sup>[5]</sup> However, the NRC's staff has recommended that rulemaking be deferred, based upon several factors, e.g., no licensee has committed to pursuing the entombment option, the unresolved issues associated with the disposition of greater-than-Class C material (GTCC), and the NRC's current priorities, at least until after the additional



research studies are complete. The Commission concurred with the staff's recommendation.

In 1996, the NRC published revisions to the general requirements for decommissioning nuclear power plants.<sup>[6]</sup> When the decommissioning regulations were adopted in 1988, it was assumed that the majority of licensees would decommission at the end of the facility's operating licensed life. Since that time, several licensees permanently and prematurely ceased operations. Exemptions from certain operating requirements were required once the reactor was defueled to facilitate the decommissioning. Each case was handled individually, without clearly defined generic requirements. The NRC amended the decommissioning regulations in 1996 to clarify ambiguities and codify procedures and terminology as a means of enhancing efficiency and uniformity in the decommissioning process. The amendments allow for greater public participation and better define the transition process from operations to decommissioning.

Under the revised regulations, licensees will submit written certification to the NRC within 30 days after the decision to cease operations. Certification will also be required once the fuel is permanently removed from the reactor vessel. Submittal of these notices will entitle the licensee to a fee reduction and eliminate the obligation to follow certain requirements needed only during operation of the reactor. Within two years of submitting notice of permanent cessation of operations, the licensee is required to submit a Post-Shutdown Decommissioning Activities Report (PSDAR) to the NRC. The PSDAR describes the planned decommissioning activities, the associated sequence and schedule, and an estimate of expected costs. Prior to completing decommissioning, the licensee is required to submit an application to the NRC to terminate the license, which will include a license termination plan (LTP).

#### 1.3.1 Nuclear Waste Policy Act

Congress passed the "Nuclear Waste Policy Act"<sup>[7]</sup> (NWPA) in 1982, assigning the federal government's long-standing responsibility for disposal of the spent nuclear fuel created by the commercial nuclear generating plants to the DOE. The NWPA provided that DOE would enter into contracts with utilities in which DOE would promise to take the utilities' spent fuel and high-level radioactive waste and utilities would pay the cost of the disposition services for that material. The NWPA, along with the individual contracts with the utilities, specified that the DOE was to begin accepting spent fuel by January 31, 1998.

Since the original legislation, the DOE has announced several delays in the program schedule. By January 1998, the DOE had failed to accept any spent fuel or high level waste, as required by the NWPA and utility contracts. Delays continue and, as a result, generators have initiated legal action against the DOE in an attempt to obtain compensation for DOE's breach of contract.

Operation of DOE's yet-to-be constructed repository is contingent upon the review and approval of the facility's license application by the NRC and the successful resolution of expected contentions and litigation. The DOE submitted its license application to the NRC on June 3, 2008, seeking authorization to construct the repository at Yucca Mountain, Nevada. Assuming a timely review, and adequate funding, the DOE expects that receipt of fuel could begin as early as 2017.<sup>[8]</sup>

It is generally necessary that spent fuel be actively cooled and stored for a minimum period at the generating site prior to transfer. As such, the NRC requires that licensees establish a program to manage and provide funding for the management of all irradiated fuel at the reactor site until title of the fuel is transferred to the Secretary of Energy, pursuant to 10 CFR Part 50.54(bb).<sup>[9]</sup> This funding requirement is fulfilled through inclusion of certain cost elements in the decommissioning estimate, for example, associated with the isolation and continued operation of the spent fuel pools and ISFSI.

According to the spent fuel management plan, at shutdown the spent fuel pools are expected to contain freshly discharged assemblies (from the most recent refueling cycles) as well as the final reactor core. Over the following twelve years the assemblies are packaged into multipurpose canisters for transfer to the DOE. It is assumed that this period provides the necessary cooling for the final core to meet the transport requirements for decay heat.

DOE's contracts with utilities order the acceptance of spent fuel from utilities based upon the oldest fuel receiving the highest priority. For purposes of this analysis, acceptance of commercial spent fuel by the DOE is expected to begin in 2017 (in accordance with DOE's latest published schedule). The first assemblies removed from the Oconee site are assumed to be in 2018. With an estimated maximum rate of transfer of 3,000 metric tons of uranium (MTU)/year from the commercial generators, completion of the removal of fuel from the Oconee site is projected to be in the year 2050. Consequently, costs are included within

the estimates for the long-term caretaking of the spent fuel at the Oconee site until the year 2050.

An ISFSI, which can be operated under a separate and independent license, has been constructed to support continued plant operations. The facility is not required to support future decommissioning operations, however, there will be spent fuel located at the ISFSI (from plant operations) that will need to be transferred to the DOE during decommissioning. This fuel is assumed to be transferred as the pools are emptied.

Duke Energy's position is that the DOE has a contractual obligation to accept Oconee's fuel earlier than the projections set out above consistent with its contract commitments. No assumption made in this study should be interpreted to be inconsistent with this claim. However, at this time, including the cost of storing spent fuel in this study is the most reasonable approach because it insures the availability of sufficient decommissioning funds at the end of the station's life if, contrary to its contractual obligation, the DOE has not performed earlier.

### 1.3.2 Low-Level Radioactive Waste Acts

The contaminated and activated material generated in the decontamination and dismantling of a commercial nuclear reactor is classified as low-level (radioactive) waste, although not all of the material is suitable for "shallow-land" disposal. With the passage of the "Low-Level Radioactive Waste Policy Act" in 1980,<sup>[10]</sup> and its Amendments of 1985,<sup>[11]</sup> the states became ultimately responsible for the disposition of low-level radioactive waste generated within their own borders.

South Carolina is a member of the three-state Atlantic Interstate Low-Level Radioactive Waste Management Compact, formed after South Carolina formally joined the Northeast Regional Compact. The Barnwell Low-Level Radioactive Waste Management Facility, located in South Carolina, is expected to be available to support the decommissioning of Oconee. It is also assumed that Duke Energy can access other disposal sites should it prove cost-effective. As such, rate schedules for both the Barnwell and EnergySolutions's facility in Clive, Utah are used to generate disposal costs.

For the purpose of this analysis, the EnergySolutions' facility is used as the basis for estimating the disposal cost for the lowest level and



majority of the radioactive waste (Class A <sup>[12]</sup>). EnergySolutions does not have a license to dispose of the more highly radioactive waste (Classes B and C), for example, generated in the dismantling of the reactor vessel. The disposal cost for this material is based upon the rate schedule for the Barnwell facility.

The dismantling of the components residing closest to the reactor core generates radioactive waste considered unsuitable for shallow-land disposal (i.e., low-level radioactive waste with concentrations of radionuclides that exceed the limits established by the NRC for Class C radioactive waste (GTCC)). The Low-Level Radioactive Waste Policy Amendments Act of 1985 assigned the federal government the responsibility for the disposal of this material. The Act also stated that the beneficiaries of the activities resulting in the generation of such radioactive waste bear all reasonable costs of disposing of such waste. However, to date, the federal government has not identified a cost for disposing of GTCC or a schedule for acceptance. As such, the GTCC radioactive waste has been packaged and disposed of as high-level waste, at a cost equivalent to that envisioned for the spent fuel.

For purposes of this study, GTCC is packaged in the same canisters used for spent fuel. The GTCC material is either stored with the spent fuel or shipped directly to a DOE facility as it is generated (depending upon the timing of the decommissioning and whether the spent fuel has been removed from the site prior to the start of decommissioning).

A significant portion of the waste material generated during decommissioning may only be potentially contaminated by radioactive materials. This waste can be analyzed on site or shipped off site to licensed facilities for further analysis, for processing and/or for conditioning/recovery. Reduction in the volume of low-level radioactive waste requiring disposal in a licensed low-level radioactive waste disposal facility can be accomplished through a variety of methods, including analyses and surveys or decontamination to eliminate the portion of waste that does not require disposal as radioactive waste, compaction, incineration or metal melt. The estimates for Oconee reflect the savings from waste recovery/volume reduction.

### 1.3.3 Radiological Criteria for License Termination

In 1997, the NRC published Subpart E, "Radiological Criteria for License Termination,"<sup>[13]</sup> amending 10 CFR Part 20. This subpart provides radiological criteria for releasing a facility for unrestricted use.

The regulation states that the site can be released for unrestricted use if radioactivity levels are such that the average member of a critical group would not receive a Total Effective Dose Equivalent (TEDE) in excess of 25 millirem per year, and provided that residual radioactivity has been reduced to levels that are As Low As Reasonably Achievable (ALARA). The decommissioning estimates assume that the Oconee site will be remediated to a residual level consistent with the NRC-prescribed level. It should be noted that the NRC and the Environmental Protection Agency (EPA) differ on the amount of residual radioactivity considered acceptable in site remediation. The EPA has two limits that apply to radioactive materials. An EPA limit of 15 millirem per year is derived from criteria established by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund).<sup>[14]</sup> An additional and separate limit of 4 millirem per year, as defined in 40 CFR §141.16, is applied to drinking water.<sup>[15]</sup>

On October 9, 2002, the NRC signed an agreement with the EPA on the radiological decommissioning and decontamination of NRC-licensed sites. The Memorandum of Understanding (MOU)<sup>[16]</sup> provides that EPA will defer exercise of authority under CERCLA for the majority of facilities decommissioned under NRC authority. The MOU also includes provisions for NRC and EPA consultation for certain sites when, at the time of license termination, (1) groundwater contamination exceeds EPA-permitted levels; (2) NRC contemplates restricted release of the site; and/or (3) residual radioactive soil concentrations exceed levels defined in the MOU.

The MOU does not impose any new requirements on NRC licensees and should reduce the involvement of the EPA with NRC licensees who are decommissioning. Most sites are expected to meet the NRC criteria for unrestricted use, and the NRC believes that only a few sites will have groundwater or soil contamination in excess of the levels specified in the MOU that trigger consultation with the EPA. However, if there are other hazardous materials on the site, the EPA may be involved in the cleanup. As such, the possibility of dual regulation remains for certain licensees. The present study does not include any costs for this occurrence.



## **2. DECOMMISSIONING ALTERNATIVES**

Detailed cost estimates were developed to decommission the Oconee nuclear plant for the following approved decommissioning alternatives: DECON and SAFSTOR. Although the alternatives differ with respect to technique, process, cost, and schedule, they attain the same result: the ultimate release of the site for unrestricted use.

The following sections describe the basic activities associated with each alternative. Although detailed procedures for each activity identified are not provided, and the actual sequence of work may vary, the activity descriptions provide a basis not only for estimating but also for the expected scope of work, i.e., engineering and planning at the time of decommissioning.

The conceptual approach that the NRC has described in its regulations divides decommissioning into three phases. The initial phase commences with the effective date of permanent cessation of operations and involves the transition of both plant and licensee from reactor operations (i.e., power production) to facility de-activation and closure. During the first phase, notification is to be provided to the NRC certifying the permanent cessation of operations and the removal of fuel from the reactor vessel. The licensee is then prohibited from reactor operation.

The second phase encompasses activities during the storage period or during major decommissioning activities, or a combination of the two. The third phase pertains to the activities involved in license termination. The decommissioning estimates developed for Oconee are also divided into phases or periods; however, demarcation of the phases is based upon major milestones within the project or significant changes in the projected expenditures.

### **2.1 DECON**

The DECON alternative, as defined by the NRC, is "the alternative in which the equipment, structures, and portions of a facility and site containing radioactive contaminants are removed or decontaminated to a level that permits the property to be released for unrestricted use shortly after cessation of operations." This study does not address the cost to dispose of the spent fuel residing at the site; such costs are funded through a surcharge on electrical generation. However, the study does estimate the costs incurred with the interim on-site storage of the fuel pending shipment by the DOE to an off-site disposal facility.

### 2.1.1 Period 1 - Preparations

In anticipation of the cessation of plant operations, detailed preparations are undertaken to provide a smooth transition from plant operations to site decommissioning. Through implementation of a staffing transition plan, the organization required to manage the intended decommissioning activities is assembled from available plant staff and outside resources. Preparations include the planning for permanent defueling of the reactor, revision of technical specifications applicable to the operating conditions and requirements, a characterization of the facility and major components, and the development of the PSDAR.

#### Engineering and Planning

The PSDAR, required within two years of the notice to cease operations, provides a description of the licensee's planned decommissioning activities, a timetable, and the associated financial requirements of the intended decommissioning program. Upon receipt of the PSDAR, the NRC will make the document available to the public for comment in a local hearing to be held in the vicinity of the reactor site. Ninety days following submittal and NRC receipt of the PSDAR, the licensee may begin to perform major decommissioning activities under a modified 10 CFR §50.59 procedure, i.e., without specific NRC approval. Major activities are defined as any activity that results in permanent removal of major radioactive components, permanently modifies the structure of the containment, or results in dismantling components (for shipment) containing GTCC, as defined by 10 CFR §61. Major components are further defined as comprising the reactor vessel and internals, large bore reactor coolant system piping, and other large components that are radioactive. The NRC includes the following additional criteria for use of the §50.59 process in decommissioning. The proposed activity must not:

- foreclose release of the site for possible unrestricted use,
- significantly increase decommissioning costs,
- cause any significant environmental impact, or
- violate the terms of the licensee's existing license.

Existing operational technical specifications are reviewed and modified to reflect plant conditions and the safety concerns associated with permanent cessation of operations. The environmental impact associated with the planned decommissioning activities is also considered.

Typically, a licensee will not be allowed to proceed if the consequences of a particular decommissioning activity are greater than that bounded by previously evaluated environmental assessments or impact statements. In this instance, the licensee would have to submit a license amendment for the specific activity and update the environmental report.

The decommissioning program outlined in the PSDAR will be designed to accomplish the required tasks within the ALARA guidelines (as defined in 10 CFR §20) for protection of personnel from exposure to radiation hazards. It will also address the continued protection of the health and safety of the public and the environment during the dismantling activity. Consequently, with the development of the PSDAR, activity specifications, cost-benefit and safety analyses, work packages and procedures, would be assembled to support the proposed decontamination and dismantling activities.

#### Site Preparations

Following final plant shutdown, and in preparation for actual decommissioning activities, the following activities are initiated:

- Characterization of the site and surrounding environs. This includes radiation surveys of work areas, major components (including the reactor vessel and its internals), internal piping, and primary shield cores.
- Isolation of the spent fuel storage pools and fuel handling systems, such that decommissioning operations can commence on the balance of the plant. The pools will remain operational for approximately twelve years following the cessation of operations before the inventory resident at shutdown can be transferred to the DOE.
- Specification of transport and disposal requirements for activated materials and/or hazardous materials, including shielding and waste stabilization.
- Development of procedures for occupational exposure control, control and release of liquid and gaseous effluent, processing of radwaste (including dry-active waste, resins, filter media, metallic and non-metallic components generated in decommissioning), site security and emergency programs, and industrial safety.

### 2.1.2 Period 2 - Decommissioning Operations

This period includes the physical decommissioning activities associated with the removal and disposal of contaminated and activated components and structures, including the successful termination of the 10 CFR §50 operating license. Significant decommissioning activities in this phase include:

- Construction of temporary facilities and/or modification of existing facilities to support dismantling activities. This may include a centralized processing area to facilitate equipment removal and component preparations for off-site disposal.
- Reconfiguration and modification of site structures and facilities as needed to support decommissioning operations. This may include the upgrading of roads (on- and off-site) to facilitate hauling and transport. Modifications may be required to the containment structure to facilitate access of large/heavy equipment. Modifications may also be required to the refueling area of the building to support the segmentation of the reactor vessel internals and component extraction.
- Design and fabrication of temporary and permanent shielding to support removal and transportation activities, construction of contamination control envelopes, and the procurement of specialty tooling.
- Procurement (lease or purchase) of shipping canisters, cask liners, and industrial packages for the disposition of low-level radioactive waste.
- Decontamination of components and piping systems as required to control (minimize) worker exposure.
- Removal of piping and components no longer essential to support decommissioning operations.
- Removal of control rod drive housings and the head service structure from the reactor vessel head. Segmentation of the vessel closure head.
- Removal and segmentation of the upper internals assemblies. Segmentation will maximize the loading of the shielded transport casks, i.e., by weight and activity. The operations are conducted under water using remotely operated tooling and contamination controls.



- Disassembly and segmentation of the remaining reactor internals, including the core shroud and lower core support assembly. Some material is expected to exceed Class C disposal requirements. As such, the segments will be packaged in modified fuel storage canisters for geologic disposal.
- Segmentation of the reactor vessel. A shielded platform is installed for segmentation as cutting operations are performed in-air using remotely operated equipment within a contamination control envelope. The water level is maintained just below the cut to minimize the working area dose rates. Segments are transferred in-air to containers that are stored under water, for example, in an isolated area of the refueling canal.
- Removal of the activated portions of the concrete biological shield and accessible contaminated concrete surfaces. If dictated by the steam generator and pressurizer removal scenarios, those portions of the associated cubicles necessary for access and component extraction are removed.
- Removal of the steam generators and pressurizer for material recovery and controlled disposal. The generators will be moved to an on-site processing center and prepared for transport to the disposal site. To facilitate transport, the generators are cut in half, across the tube bundle. The exposed ends are capped and sealed. The segments can serve as their own burial containers provided that all penetrations are properly sealed and the internal contaminants are stabilized, e.g., with grout. Steel shielding will be added, as necessary, to those external areas of the package to meet transportation limits and regulations. The retired units in storage at the site will be handled in a similar manner.

At least two years prior to the anticipated date of license termination, an LTP is required. Submitted as a supplement to the Final Safety Analysis Report (FSAR) or its equivalent, the plan must include: a site characterization, description of the remaining dismantling activities, plans for site remediation, procedures for the final radiation survey, designation of the end use of the site, an updated cost estimate to complete the decommissioning, and any associated environmental concerns. The NRC will notice the receipt of the plan, make the plan available for public comment, and schedule a local hearing. LTP approval will be subject to any conditions and limitations as deemed appropriate by the Commission. The licensee may then commence with the final remediation of site facilities and services, including:

- Removal of remaining plant systems and associated components as they become nonessential to the decommissioning program or worker health and safety (e.g., waste collection and treatment systems, electrical power and ventilation systems).
- Removal of the steel liners from refueling canal, disposing of the activated and contaminated sections as radioactive waste. Removal of any activated/ contaminated concrete.
- Surveys of the decontaminated areas of the containment structure.
- Remediation and removal of the contaminated equipment and material from the auxiliary and fuel buildings and any other contaminated facility. Radiation and contamination controls will be utilized until residual levels indicate that the structures and equipment can be released for unrestricted access and conventional demolition. This activity may necessitate the dismantling and disposition of most of the systems and components (both clean and contaminated) located within these buildings. This activity facilitates surface decontamination and subsequent verification surveys required prior to obtaining release for demolition.
- Routing of material removed in the decontamination and dismantling to a central processing area. Material certified to be free of contamination is released for unrestricted disposition, e.g., as scrap, recycle, or general disposal. Contaminated material is characterized and segregated for additional off-site processing (disassembly, chemical cleaning, volume reduction, and waste treatment), and/or packaged for controlled disposal at a low-level radioactive waste disposal facility.

Incorporated into the LTP is the Final Survey Plan. This plan identifies the radiological surveys to be performed once the decontamination activities are completed and is developed using the guidance provided in the "Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)."<sup>[17]</sup> This document incorporates the statistical approaches to survey design and data interpretation used by the EPA. It also identifies state-of-the-art, commercially available instrumentation and procedures for conducting radiological surveys. Use of this guidance ensures that the surveys are conducted in a manner that provides a high degree of confidence that applicable NRC criteria are satisfied. Once the survey is complete, the results are provided to the NRC in a format that can be verified. The NRC then reviews and evaluates the information, performs an independent confirmation of radiological site conditions, and makes a determination on final termination of the license.

The NRC will terminate the operating licenses if it determines that site remediation has been performed in accordance with the LTP, and that the terminal radiation survey and associated documentation demonstrate that the facility is suitable for release.

### 2.1.3 Period 3 - Site Restoration

Following completion of decommissioning operations, site restoration activities will begin. Efficient removal of the contaminated materials and verification that residual radionuclide concentrations are below the NRC limits will result in substantial damage to many of the structures. Although performed in a controlled, safe manner, blasting, coring, drilling, scarification (surface removal), and the other decontamination activities will substantially degrade power block structures including the reactor and auxiliary buildings. Under certain circumstances, verifying that subsurface radionuclide concentrations meet NRC site release requirements will require removal of grade slabs and lower floors, potentially weakening footings and structural supports. This removal activity will be necessary for those facilities and plant areas where historical records, when available, indicate the potential for radionuclides having been present in the soil, where system failures have been recorded, or where it is required to confirm that subsurface process and drain lines were not breached over the operating life of the station.

Prompt dismantling of site structures is clearly the most appropriate and cost-effective option. It is unreasonable to anticipate that these structures would be repaired and preserved after the radiological contamination is removed. The cost to dismantle site structures with a work force already mobilized on site is more efficient than if the process were deferred. Site facilities quickly degrade without maintenance, adding additional expense and creating potential hazards to the public as well as to future workers. Abandonment creates a breeding ground for vermin infestation as well as other biological hazards.

This cost study presumes that non-essential structures and site facilities are dismantled as a continuation of the decommissioning activity. Foundations and exterior walls are removed to a nominal depth of three feet below grade. The three-foot depth allows for the placement of gravel for drainage, as well as topsoil, so that vegetation can be established for erosion control. Site areas affected by the dismantling activities are restored and the plant area graded as required to prevent ponding and inhibit the refloating of subsurface materials.



Non-contaminated concrete rubble produced by demolition activities is processed to remove reinforcing steel and miscellaneous embedments. The processed material is then used on site to backfill foundation voids. Excess non-contaminated materials are trucked to an off-site area for disposal as construction debris.

#### 2.1.4 ISFSI Operations and Decommissioning

The ISFSI will continue to operate under a separate and independent license (10 CFR §72) following the termination of the §50 operating licenses. Assuming the DOE starts accepting fuel from Oconee in 2018, transfer of spent fuel from the ISFSI is anticipated to continue through the year 2050.

At the conclusion of the spent fuel transfer process, the ISFSI will be decommissioned. The Commission will terminate the §72 license when it determines that the remediation of the ISFSI has been performed in accordance with an ISFSI license termination plan and that the final radiation survey and associated documentation demonstrate that the facility is suitable for release. Once the requirements are satisfied, the NRC can terminate the license for the ISFSI.

The ISFSI is comprised of a series of horizontal storage modules and dry storage canisters located on pre-cast concrete storage pads. For purposes of this cost analysis, it is assumed that once the inner canisters containing the spent fuel assemblies have been removed, any required decontamination performed, and the license for the facility terminated, the modules can be dismantled using conventional techniques for the demolition of reinforced concrete. The concrete storage pads will then be removed, and the area graded and landscaped to conform to the surrounding environment.

## **2.2 SAFSTOR**

The NRC defines SAFSTOR as "the alternative in which the nuclear facility is placed and maintained in a condition that allows the nuclear facility to be safely stored and subsequently decontaminated (deferred decontamination) to levels that permit release for unrestricted use." The facility is left intact (during the dormancy period), with structures maintained in a sound condition. Systems that are not required to support the spent fuel pools or site surveillance and security are drained, de-energized, and secured. Minimal cleaning/removal of loose contamination and/or fixation and sealing of



remaining contamination is performed. Access to contaminated areas is secured to provide controlled access for inspection and maintenance.

The engineering and planning requirements are similar to those for the DECON alternative, although a shorter time period is expected for these activities due to the more limited work scope. Site preparations are also similar to those for the DECON alternative. However, with the exception of the required radiation surveys and site characterizations, the mobilization and preparation of site facilities is less extensive.

#### 2.2.1 Period 1 - Preparations

Preparations for long-term storage include the planning for permanent defueling of the reactor, revision of technical specifications appropriate to the operating conditions and requirements, a characterization of the facility and major components, and the development of the PSDAR.

The process of placing the plant in safe-storage includes, but is not limited to, the following activities:

- Isolating of the spent fuel storage services and fuel handling systems so that safe-storage operations may commence on the balance of the plant. This activity may be carried out by plant personnel in accordance with existing operating technical specifications. Activities are scheduled around the fuel handling systems to the greatest extent possible.
- Transferring of the spent fuel from the storage pools to the DOE, following the minimum required cooling period in the spent fuel pools.
- Draining and de-energizing of the non-contaminated systems not required to support continued site operations or maintenance.
- Disposing of contaminated filter elements and resin beds not required for processing wastes from layup activities for future operations.
- Draining of the reactor vessel, with the internals left in place and the vessel head secured.
- Draining and de-energizing non-essential, contaminated systems with decontamination as required for future maintenance and inspection.

- Preparing lighting and alarm systems whose continued use is required; de-energizing portions of fire protection, electric power, and HVAC systems whose continued use is not required.
- Cleaning of the loose surface contamination from building access pathways.
- Performing an interim radiation survey of plant, posting warning signs where appropriate.
- Erecting physical barriers and/or securing all access to radioactive or contaminated areas, except as required for inspection and maintenance.
- Installing security and surveillance monitoring equipment and relocating security fence around secured structures, as required.

#### 2.2.2 Period 2 - Dormancy

The second phase identified by the NRC in its rule addresses licensed activities during a storage period and is applicable to the dormancy phases of the deferred decommissioning alternatives. Dormancy activities include a 24-hour security force, preventive and corrective maintenance on security systems, area lighting, general building maintenance, heating and ventilation of buildings, routine radiological inspections of contaminated structures, maintenance of structural integrity, and a site environmental and radiation monitoring program. Resident maintenance personnel perform equipment maintenance, inspection activities, routine services to maintain safe conditions, adequate lighting, heating, and ventilation, and periodic preventive maintenance on essential site services.

An environmental surveillance program is carried out during the dormancy period to ensure that releases of radioactive material to the environment are prevented and/or detected and controlled. Appropriate emergency procedures are established and initiated for potential releases that exceed prescribed limits. The environmental surveillance program constitutes an abbreviated version of the program in effect during normal plant operations.

Security during the dormancy period is conducted primarily to prevent unauthorized entry and to protect the public from the consequences of its own actions. The security fence, sensors, alarms, and other surveillance equipment provide security. Fire and radiation alarms are also monitored and maintained.

Consistent with the DECON scenario, the spent fuel storage pools are emptied within twelve years of the cessation of operations. The transfer of the spent fuel to the DOE continues throughout the dormancy period until completed in 2050. Once emptied, the ISFSI is secured for storage and decommissioned along with the power block structures in Period 4.

After an optional period of storage (such that license termination is accomplished within 60 years of final shutdown), it is required that the licensee submit an application to terminate the license, along with an LTP (described in Section 2.1.2), thereby initiating the third phase.

### 2.2.3 Periods 3 and 4 - Delayed Decommissioning

Prior to the commencement of decommissioning operations, preparations are undertaken to reactivate site services and prepare for decommissioning. Preparations include engineering and planning, a detailed site characterization, and the assembly of a decommissioning management organization. Final planning for activities and the writing of activity specifications and detailed procedures are also initiated at this time.

Much of the work in developing a termination plan is relevant to the development of the detailed engineering plans and procedures. The activities associated with this phase and the follow-on decontamination and dismantling processes are detailed in Sections 2.1.1 and 2.1.2. The primary difference between the sequences anticipated for the DECON and this deferred scenario is the absence, in the latter, of any constraint on the availability of the fuel storage facilities for decommissioning.

Variations in the length of the dormancy period are expected to have little effect upon the quantities of radioactive wastes generated from system and structure removal operations. Given the levels of radioactivity and spectrum of radionuclides expected from sixty years of plant operation, no plant process system identified as being contaminated upon final shutdown will become releasable due to the decay period alone, i.e., there is no significant reduction in the waste generated from the decommissioning activities. However, due to the lower activity levels, a greater percentage of the waste volume can be designated for off-site processing and recovery.

The delay in decommissioning also yields lower working area radiation levels. As such, the estimate for this delayed scenario incorporates



reduced ALARA controls for the SAFSTOR's lower occupational exposure potential.

Although the initial radiation levels due to  $^{60}\text{Co}$  will decrease during the dormancy period, the internal components of the reactor vessel will still exhibit sufficiently high radiation dose rates to require remote sectioning under water due to the presence of long-lived radionuclides such as  $^{94}\text{Nb}$ ,  $^{59}\text{Ni}$ , and  $^{63}\text{Ni}$ . Therefore, the dismantling procedures described for the DECON alternative would still be employed during this scenario. Portions of the biological shield will still be radioactive due to the presence of activated trace elements with long half-lives ( $^{152}\text{Eu}$  and  $^{154}\text{Eu}$ ). Decontamination will require controlled removal and disposal. It is assumed that radioactive corrosion products on inner surfaces of piping and components will not have decayed to levels that will permit unrestricted use or allow conventional removal. These systems and components will be surveyed as they are removed and disposed of in accordance with the existing radioactive release criteria.

#### 2.2.4 Period 5 - Site Restoration

Following completion of decommissioning operations, site-restoration activities can begin. Dismantling, as a continuation of the decommissioning process, is clearly the most appropriate and cost-effective option, as described in Section 2.1.3. The basis for the dismantling cost in this scenario is consistent with that described for DECON, presuming the removal of structures and site facilities to a nominal depth of three feet below grade and the limited restoration of the site.



### **3. COST ESTIMATE**

The cost estimates prepared for decommissioning Oconee consider the unique features of the site, including the NSSS, power generation systems, support services, site buildings, and ancillary facilities. The basis of the estimates, including the sources of information relied upon, the estimating methodology employed, site-specific considerations, and other pertinent assumptions, is described in this section.

#### **3.1 BASIS OF ESTIMATE**

The estimates were developed using the site-specific, technical information from the 2003 analysis. This information was reviewed for the current analysis and updated as deemed appropriate. The site-specific considerations and assumptions used in the previous evaluation were also revisited. Modifications were incorporated where new information was available or experience from ongoing decommissioning programs provided viable alternatives or improved processes.

#### **3.2 METHODOLOGY**

The methodology used to develop the estimates follows the basic approach originally presented in the AIF/NESP-036 study report. "Guidelines for Producing Commercial Nuclear Power Plant Decommissioning Cost Estimates,"<sup>[18]</sup> and the DOE "Decommissioning Handbook."<sup>[19]</sup> These documents present a unit factor method for estimating decommissioning activity costs, which simplifies the estimating calculations. Unit factors for concrete removal (\$/cubic yard), steel removal (\$/ton), and cutting costs (\$/inch) are developed using local labor rates. The activity-dependent costs are estimated with the item quantities (cubic yards and tons), developed from plant drawings and inventory documents. Removal rates and material costs for the conventional disposition of components and structures rely upon information available in the industry publication, "Building Construction Cost Data," published by R.S. Means.<sup>[20]</sup>

The unit factor method provides a demonstrable basis for establishing reliable cost estimates. The detail provided in the unit factors, including activity duration, labor costs (by craft), and equipment and consumable costs, ensures that essential elements have not been omitted. Appendix A presents the detailed development of a typical unit factor. Appendix B provides the values contained within one set of factors developed for this analysis.

This analysis reflects lessons learned from TLG's involvement in the Shippingport Station Decommissioning Project, completed in 1989, as well as the decommissioning of the Cintichem reactor, hot cells, and associated facilities, completed in 1997. In addition, the planning and engineering for the Pathfinder, Shoreham, Rancho Seco, Trojan, Yankee Rowe, Big Rock Point, Maine Yankee, Humboldt Bay-3, Oyster Creek, Connecticut Yankee, and San Onofre-1 nuclear units have provided additional insight into the process, the regulatory aspects, and the technical challenges of decommissioning commercial nuclear units.

#### Work Difficulty Factors

TLG has historically applied work difficulty adjustment factors (WDFs) to account for the inefficiencies in working in a power plant environment. WDFs are assigned to each unique set of unit factors, commensurate with the inefficiencies associated with working in confined, hazardous environments. The ranges used for the WDFs are as follows:

- |                                 |            |
|---------------------------------|------------|
| • Access Factor                 | 10% to 20% |
| • Respiratory Protection Factor | 10% to 50% |
| • Radiation/ALARA Factor        | 10% to 37% |
| • Protective Clothing Factor    | 10% to 30% |
| • Work Break Factor             | 8.33%      |

The factors and their associated range of values were developed in conjunction with the AIF/NESP-036 study. The application of the factors is discussed in more detail in that publication.

#### Scheduling Program Durations

The unit factors, adjusted by the WDFs as described above, are applied against the inventory of materials to be removed in the radiologically controlled areas. The resulting man-hours, or crew-hours, are used in the development of the decommissioning program schedule, using resource loading and event sequencing considerations. The scheduling of conventional removal and dismantling activities is based upon productivity information available from the "Building Construction Cost Data" publication.

An activity duration critical path is used to determine the total decommissioning program schedule. The schedule is relied upon in calculating the carrying costs, which include program management, administration, field

engineering, equipment rental, and support services such as quality control and security. This systematic approach for assembling decommissioning estimates ensures a high degree of confidence in the reliability of the resulting costs.

### **3.3 IMPACT OF DECOMMISSIONING MULTIPLE REACTOR UNITS**

In estimating the near simultaneous decommissioning of three co-located reactor units there can be opportunities to achieve economies of scale, by sharing costs between units, and coordinating the sequence of work activities. There will also be schedule constraints, particularly where there are requirements for specialty equipment and staff, or practical limitations on when final status surveys can take place. For purposes of the estimate, the units are assumed to be essentially identical. Common facilities have been assigned to Unit 3. A summary of the principal impacts are listed below.

- The sequence of work generally follows the principal that the work is done at Unit 1 first, followed by similar work at Units 2 and 3. This permits the experience gained at Unit 1 to be applied by the workforce at the other units. It should be noted however, that the estimate does not consider productivity improvements at the second and third units, since there is little documented experience with decommissioning three units simultaneously. The work associated with developing activity specifications and procedures can be considered essentially identical between the three units, therefore the second and third unit costs are assumed to be a fraction of the first unit (~ 43%).
- Segmenting the reactor vessel and internals will require the use of special equipment. The decommissioning project will be scheduled such that Unit 2's reactor internals and vessel are segmented immediately after the activities at Unit 1 have been completed.
- Some program management and support costs, particularly costs associated with the more senior positions, can be avoided with three reactors undergoing decommissioning simultaneously. As a result, the estimate is based on a "lead" unit that includes these senior positions, and a "second" unit that excludes these positions. The designation as lead is based on the unit undertaking the most complex tasks (for instance vessel segmentation) or performing tasks for the first time.
- The final radiological survey schedule is also affected by a three-unit decommissioning schedule. It would be considered impractical to try to complete the final status survey of Unit 1, while Units 2 and 3 still have ongoing radiological remediation work and waste handling in process. As such, the transfer of the spent fuel from the storage pools and subsequent



decontamination of the fuel handling buildings is coordinated so as to synchronize the final status survey for the station.

- The final demolition of buildings at the site is considered to take place concurrently. This is considered a reasonable assumption since access to the buildings is considered good at the station.
- Unit 1, as the first unit to enter decommissioning, incurs the majority of site characterization costs.
- Shared systems and common structures are generally assigned to Unit 3.
- Station costs such as emergency response fees, regulatory agency fees, corporate overhead, and insurance are generally allocated on an equal basis between the three units.

### **3.4 FINANCIAL COMPONENTS OF THE COST MODEL**

TLG's proprietary decommissioning cost model, DECCER, produces a number of distinct cost elements. These direct expenditures, however, do not comprise the total cost to accomplish the project goal, i.e., license termination and site restoration.

Inherent in any cost estimate that does not rely on historical data is the inability to specify the precise source of costs imposed by factors such as tool breakage, accidents, illnesses, weather delays, and labor stoppages. In the DECCER cost model, contingency fulfills this role. Contingency is added to each line item to account for costs that are difficult or impossible to develop analytically. Such costs are historically inevitable over the duration of a job of this magnitude; therefore, this cost analysis includes funds to cover these types of expenses.

#### **3.4.1 Contingency**

The activity- and period-dependent costs are combined to develop the total decommissioning cost. A contingency is then applied on a line-item basis, using one or more of the contingency types listed in the AIF/NESP-036 study. "Contingencies" are defined in the American Association of Cost Engineers "Project and Cost Engineers' Handbook"<sup>[21]</sup> as "specific provision for unforeseeable elements of cost within the defined project scope; particularly important where previous experience relating estimates and actual costs has shown that unforeseeable events which will increase costs are likely to occur." The cost elements in this analysis are based upon ideal conditions and maximum efficiency; therefore, consistent with industry practice,



contingency is included. In the AIF/NESP-036 study, the types of unforeseeable events that are likely to occur in decommissioning are discussed and guidelines are provided for percentage contingency in each category. It should be noted that contingency, as used in this analysis, does not account for price escalation and inflation in the cost of decommissioning over the remaining operating life of the station.

Contingency funds are an integral part of the total cost to complete the decommissioning process. Exclusion of this component puts at risk a successful completion of the intended tasks and, potentially, subsequent related activities. For this study, TLG examined the major activity-related problems (decontamination, segmentation, equipment handling, packaging, transport, and waste disposal) that necessitate a contingency. Individual activity contingencies ranged from 10% to 75%, depending on the degree of difficulty judged to be appropriate from TLG's actual decommissioning experience. The contingency values used in this study are as follows:

• Decontamination	50%
• Contaminated Component Removal	25%
• Contaminated Component Packaging	10%
• Contaminated Component Transport	15%
• Low-Level Radioactive Waste Disposal	25%
• Reactor Segmentation	75%
• NSSS Component Removal	25%
• Reactor Waste Packaging	25%
• Reactor Waste Transport	25%
• Reactor Vessel Component Disposal	50%
• GTCC Disposal	15%
• Non-Radioactive Component Removal	15%
• Heavy Equipment and Tooling	15%
• Supplies	25%
• Engineering	15%
• Energy	15%
• Characterization and Termination Surveys	30%
• Construction	15%
• Taxes and Fees	10%
• Insurance	10%
• Staffing	15%

The contingency values are applied to the appropriate components of the estimates on a line item basis. A composite value is then reported at the end of each detailed estimate (as provided in Appendix C and D). For example, the composite contingency value reported for the DECON alternative in Appendix C is approximately 19.6% and for the SAFSTOR alternative in Appendix D is approximately 18.1%.

### 3.4.2 Financial Risk

In addition to the routine uncertainties addressed by contingency, another cost element that is sometimes necessary to consider when bounding decommissioning costs relates to uncertainty, or risk. Examples can include changes in work scope, pricing, job performance, and other variations that could conceivably, but not necessarily, occur. Consideration is sometimes necessary to generate a level of confidence in the estimate, within a range of probabilities. TLG considers these types of costs under the broad term “financial risk.” Included within the category of financial risk are:

- Transition activities and costs: ancillary expenses associated with eliminating 50% to 80% of the site labor force shortly after the cessation of plant operations, added cost for worker separation packages throughout the decommissioning program, national or company-mandated retraining, and retention incentives for key personnel.
- Delays in approval of the decommissioning plan due to intervention, public participation in local community meetings, legal challenges, and national and local hearings.
- Changes in the project work scope from the baseline estimate, involving the discovery of unexpected levels of contaminants, contamination in places not previously expected, contaminated soil previously undiscovered (either radioactive or hazardous material contamination), variations in plant inventory or configuration not indicated by the as-built drawings.
- Regulatory changes, for example, affecting worker health and safety, site release criteria, waste transportation, and disposal.
- Policy decisions altering national commitments (e.g., in the ability to accommodate certain waste forms for disposition), or in the timetable for such, for example, the start and rate of acceptance of spent fuel by the DOE.

- Pricing changes for basic inputs such as labor, energy, materials, and disposal. Items subject to widespread price competition (such as materials) may not show significant variation; however, others such as waste disposal could exhibit large pricing uncertainties, particularly in markets where limited access to services is available.

It has been TLG's experience that the results of a risk analysis, when compared with the base case estimate for decommissioning, indicate that the chances of the base decommissioning estimate being too high is a low probability, and the chances that the estimate is too low is a higher probability. This is mostly due to the pricing uncertainty for low-level radioactive waste burial, and to a lesser extent due to schedule increases from changes in plant conditions and to pricing variations in the cost of labor (both craft and staff). This cost study, however, does not add any additional costs to the estimate for financial risk, since there is insufficient historical data from which to project future liabilities. Consequently, the areas of uncertainty or risk are revisited periodically and addressed through repeated revisions or updates of the base estimates.

### **3.5 SITE-SPECIFIC CONSIDERATIONS**

There are a number of site-specific considerations that affect the method for dismantling and removal of equipment from the site and the degree of restoration required. The cost impact of the considerations identified below is included in this cost study.

#### **3.5.1 Spent Fuel Management**

The cost to dispose the spent fuel generated from plant operations is not reflected within the estimates to decommission Oconee. Ultimate disposition of the spent fuel is within the province of the DOE's Waste Management System, as defined by the Nuclear Waste Policy Act. As such, the disposal cost is financed by a 1 mill/kWhr surcharge paid into the DOE's waste fund during operations. However, the NRC requires licensees to establish a program to manage and provide funding for the management of all irradiated fuel at the reactor site until title of the fuel is transferred to the Secretary of Energy. This funding requirement is fulfilled through inclusion of certain high-level waste cost elements within the estimates, as described below.

Completion of the decommissioning process is highly dependent upon the DOE's ability to remove spent fuel from the site. The timing for

removal of spent fuel from the site is based upon the DOE's most recently published annual acceptance rates of 400 MTU/year for year 1, 3,800 MTU total for years 2 through 4 and 3,000 MTU/year for year 5 and beyond.<sup>[22]</sup> The DOE contracts provide mechanisms for altering the oldest fuel first allocation scheme, including emergency deliveries, exchanges of allocations amongst utilities and the option of providing priority acceptance from permanently shutdown nuclear reactors. Because it is unclear how these mechanisms may operate once DOE begins accepting spent fuel from commercial reactors, this study assumes that DOE will accept spent fuel in an oldest fuel first order.

### ISFSI

An ISFSI, which can be operated under a separate and independent license, has been constructed to support continued plant operations. The facility is not required to support future decommissioning operations; however, there will be spent fuel located at the ISFSI (from plant operations) that will need to be transferred to the DOE during decommissioning. This fuel is assumed to be transferred as the pools are emptied.

The ISFSI will continue to operate throughout decommissioning, and beyond the termination of the operating license in the DECON decommissioning scenario, until such time that the transfer of spent fuel to the DOE can be completed. Assuming that DOE commences repository operation in 2017, Oconee fuel is projected to be removed from the site beginning in 2018. The process is expected to be completed by the year 2050, based upon the current shutdown dates, as delineated in Table 3.1. The scenario is similar for the SAFSTOR alternative; however, based upon the expected completion date for fuel transfer, the ISFSI will be emptied prior to the commencement of decommissioning operations.

Operation and maintenance costs for the spent fuel pools and the ISFSI are included within the estimates and address the cost for staffing the facility, as well as security, insurance, and licensing fees. Costs are also provided for the final disposition of the facilities once the transfer is complete.

### Storage Canister Design

A multi-purpose storage canister, with a 24-fuel assembly capacity, is assumed to be used at the ISFSI and in the transfer of spent fuel to the DOE. For fuel transferred directly from the pools to the DOE, the DOE



is assumed to provide Transport, Aging and Disposal (TAD) canisters with a 21 assembly capacity at no additional cost to the owner.

#### Canister Loading and Transfer

An average cost of \$1,800 per assembly is used for the labor and equipment to seal and load each spent fuel canister into the DOE transport cask from the wet storage pools. For estimating purposes, 50% of this cost is used to estimate the cost to transfer the fuel from the ISFSI into the transport cask. An additional cost of \$100,000 is used for the labor and equipment to perform the closure and testing of the TAD cask for shipment to the DOE repository.

#### Operations and Maintenance

An annual cost (excluding labor) of approximately \$745,000 and \$109,000 are used for operation and maintenance of the spent fuel pools and the ISFSI, respectively. Pool operations are expected to continue approximately twelve years after the cessation of operations. ISFSI operating costs are based upon a 16 year period of operations following the cessation of operations at the last unit.

#### ISFSI Design Considerations

A multi-purpose (storage and transport) dry shielded storage canister with a horizontal, reinforced concrete storage module is used as a basis for the cost analysis. The storage modules, are assumed to have some level of neutron-induced activation as a result of the long-term storage of the fuel (i.e., to levels exceeding free-release limits). The steel support structure is assumed to be removed from these modules for controlled disposal. The cost of the disposition of this material, as well as the demolition of the ISFSI facility, is included in the estimate.

#### GTCC

The dismantling of the reactor internals generates radioactive waste considered unsuitable for shallow land disposal (i.e., low-level radioactive waste with concentrations of radionuclides that exceed the limits established by the NRC for Class C radioactive waste (GTCC)). The Low-Level Radioactive Waste Policy Amendments Act of 1985 assigned the federal government the responsibility for the disposal of this material. The Act also stated that the beneficiaries of the activities resulting in the generation of such radioactive waste bear all reasonable

costs of disposing of such waste. Although there are strong arguments that GTCC waste is covered by the spent fuel contract with DOE and the fees being paid pursuant to that contract, DOE has taken the position that GTCC waste is not covered by that contract or its fees and that utilities, including Duke Energy, will have to pay an additional fee for the disposal of their GTCC waste. However, to date, the federal government has not identified a cost for disposing of GTCC or a schedule for acceptance. As such, the GTCC radioactive waste has been packaged and disposed of as high-level waste, at a cost equivalent to that envisioned for the spent fuel.

For purposes of this study, GTCC is packaged in the same canisters used to store spent fuel. Disposal costs are based upon a cost equivalent to that envisioned for the spent fuel. It is not anticipated that the DOE would accept this waste prior to completing the transfer of spent fuel. Therefore, until such time the DOE is ready to accept GTCC waste, it is reasonable to assume that this material would remain in storage with the spent fuel in the ISFSI at the Oconee site (for the DECON alternative). In the SAFSTOR scenario, the GTCC material is shipped directly to a DOE facility as it is generated since the fuel has been removed from the site prior to the start of decommissioning and the ISFSI deactivated.

### 3.5.2 Reactor Vessel and Internal Components

The reactor pressure vessel and internal components are segmented for disposal in shielded, reusable transportation casks. Segmentation is performed in the refueling canal, where a turntable and remote cutter are installed. The vessel is segmented in place, using a mast-mounted cutter supported off the lower head and directed from a shielded work platform installed overhead in the reactor cavity. Transportation cask specifications and transportation regulations dictate the segmentation and packaging methodology.

Intact disposal of reactor vessel shells has been successfully demonstrated at several of the sites currently being decommissioned. Access to navigable waterways has allowed these large packages to be transported to the Barnwell disposal site with minimal overland travel. Intact disposal of the reactor vessel and internal components can provide savings in cost and worker exposure by eliminating the complex segmentation requirements, isolation of the GTCC material, and transport/storage of the resulting waste packages. Portland General Electric (PGE) was able to dispose of the Trojan reactor as an intact

package (including the internals). However, its location on the Columbia River simplified the transportation analysis since:

- ◊ the reactor package could be secured to the transport vehicle for the entire journey, i.e., the package was not lifted during transport,
- ◊ there were no man-made or natural terrain features between the plant site and the disposal location that could produce a large drop, and
- transport speeds were very low, limited by the overland transport vehicle and the river barge.

As a member of the Northwest Compact, PGE had a site available for disposal of the package - the US Ecology facility in Washington State. The characteristics of this arid site proved favorable in demonstrating compliance with land disposal regulations.

It is not known whether this option will be available when the Oconee plant ceases operation. Future viability of this option will depend upon the ultimate location of the disposal site, as well as the disposal site licensee's ability to accept highly radioactive packages and effectively isolate them from the environment. Consequently, the study assumes the reactor vessel will require segmentation, as a bounding condition.

### 3.5.3 Primary System Components

In the DECON scenario, the reactor coolant system components are assumed to be decontaminated using chemical agents prior to the start of dismantling operations. This type of decontamination can be expected to have a significant ALARA impact, since in this scenario the removal work is done within the first few years of shutdown. A decontamination factor (average reduction) of 10 is assumed for the process. Disposal of the decontamination solution effluent is included within the estimate as a "process liquid waste" charge. In the SAFSTOR scenario, radionuclide decay is expected to provide the same benefit and, therefore, a chemical decontamination is not included.

The following discussion deals with the removal and disposition of the steam generators, but the techniques involved are also applicable to other large components, such as heat exchangers, component coolers, and the pressurizer. The steam generators' size and weight, as well as

their location within the reactor building, will ultimately determine the removal strategy.

A trolley crane is set up for the removal of the generators. It can also be used to move portions of the steam generator cubicle walls and floor slabs from the reactor building to a location where they can be decontaminated and transported to the material handling area. Interferences within the work area, such as grating, piping, and other components are removed to create sufficient laydown space for processing these large components.

The generators are rigged for removal, disconnected from the surrounding piping and supports, and maneuvered into the open area where they are lowered onto a dolly. Each generator is rotated into the horizontal position for extraction from the containment and placed onto a multi-wheeled vehicle for transport to an on-site processing and storage area.

The generators are segmented on-site to facilitate transportation. Each unit is cut in half, across the tube sheet. The exposed ends are capped and sealed. The interior volume is filled with low-density cellular concrete for stabilization of the internal contamination. Each component is then loaded onto a rail car for transport to the disposal facility.

Disposal costs are based upon the internal volume and weight of the units. Each component is then loaded onto a rail car for transport to the disposal facility.

Reactor coolant piping is cut from the reactor vessel once the water level in the vessel (used for personnel shielding during dismantling and cutting operations in and around the vessel) is dropped below the nozzle zone. The piping is boxed and transported by shielded van. The reactor coolant pumps and motors are lifted out intact, packaged, and transported for processing and/or disposal.

#### 3.5.4 Retired Components

The estimate includes the cost to dispose of six retired steam generators expected to be in storage at the site upon the cessation of plant operations. The components are processed for disposal in the same manner as described for the installed units.



### 3.5.5 Main Turbine and Condenser

The main turbine is dismantled using conventional maintenance procedures. The turbine rotors and shafts are removed to a laydown area. The lower turbine casings are removed from their anchors by controlled demolition. The main condensers are also disassembled and moved to a laydown area. Material is then prepared for transportation to an off-site recycling facility where it is surveyed and designated for either decontamination or volume reduction, conventional disposal, or controlled disposal. Components are packaged and readied for transport in accordance with the intended disposition.

### 3.5.6 Transportation Methods

Contaminated piping, components, and structural material other than the highly activated reactor vessel and internal components will qualify as LSA-I, II or III or Surface Contaminated Object, SCO-I or II, as described in Title 49.<sup>[23]</sup> The contaminated material will be packaged in Industrial Packages (IP-1, IP-2, or IP-3, as defined in subpart 173.411) for transport unless demonstrated to qualify as their own shipping containers. The reactor vessel and internal components are expected to be transported in accordance with Part 71, as Type B. It is conceivable that the reactor, due to its limited specific activity, could qualify as LSA II or III. However, the high radiation levels on the outer surface would require that additional shielding be incorporated within the packaging so as to attenuate the dose to levels acceptable for transport.

Any fuel cladding failure that occurred during the lifetime of the plant is assumed to have released fission products at sufficiently low levels that the buildup of quantities of long-lived isotopes (e.g., <sup>137</sup>Cs, <sup>90</sup>Sr, or transuranics) has been prevented from reaching levels exceeding those that permit the major reactor components to be shipped under current transportation regulations and disposal requirements.

Transport of the highly activated metal, produced in the segmentation of the reactor vessel and internal components, will be by shielded truck cask. Cask shipments may exceed 95,000 pounds, including vessel segment(s), supplementary shielding, cask tie-downs, and tractor-trailer. The maximum level of activity per shipment assumed permissible was based upon the license limits of the available shielded transport casks. The segmentation scheme for the vessel and internal segments is designed to meet these limits.

The transport of large intact components (e.g., large heat exchangers and other oversized components) will be by a combination of truck, rail, and/or multi-wheeled transporter.

Transportation costs for material requiring controlled disposal are based upon the mileage to the Barnwell facility and/or the EnergySolutions facility in Clive, Utah. Transportation costs for off-site waste processing are based upon the mileage to Memphis, Tennessee. Truck transport costs are estimated using published tariffs from Tri-State Motor Transit.<sup>[24]</sup>

### 3.5.7 Low-Level Radioactive Waste Disposal

To the greatest extent practical, metallic material generated in the decontamination and dismantling processes is processed to reduce the total cost of controlled disposal. Material meeting the regulatory and/or site release criterion, is released as scrap, requiring no further cost consideration. Conditioning (preparing the material to meet the waste acceptance criteria of the disposal site) and recovery of the waste stream is performed off site at a licensed processing center. Any material leaving the site is subject to a survey and release charge, at a minimum. Based on TLG's experience, rates were assumed for off-site processing as well as survey and release.

The mass of radioactive waste generated during the various decommissioning activities at the site is shown on a line-item basis in the detailed Appendices C and D, and summarized in Section 5. The quantified waste summaries shown in these tables are consistent with 10 CFR Part 61 classifications. Commercially available steel containers are presumed to be used for the disposal of piping, small components, and concrete. Larger components can serve as their own containers, with proper closure of all openings, access ways, and penetrations. The volumes are calculated based on the exterior package dimensions for containerized material or a specific calculation for components serving as their own waste containers.

The more highly activated reactor components will be shipped in reusable, shielded truck casks with disposable liners. In calculating disposal costs, the burial fees are applied against the liner volume, as well as the special handling requirements of the payload. Packaging efficiencies are lower for the highly activated materials (greater than Type A quantity waste), where high concentrations of gamma-emitting radionuclides limit the capacity of the shipping canisters.

Disposal fees are based upon estimated charges, with surcharges added for the highly activated components, for example, generated in the segmentation of the reactor vessel. The cost to dispose of the lowest level and majority of the material generated from the decontamination and dismantling activities is based upon the current cost for disposal at EnergySolutions facility in Clive, Utah. Disposal costs for the higher activity waste (Class B and C) are based upon the rate schedule for the Barnwell facility.

#### **3.5.8 Site Conditions Following Decommissioning**

The NRC will terminate (or amend) the site license if it determines that site remediation has been performed in accordance with the license termination plan, and that the terminal radiation survey and associated documentation demonstrate that the facility is suitable for release. The NRC's involvement in the decommissioning process will end at this point. Local building codes and state environmental regulations will dictate the next step in the decommissioning process, as well as the owner's own future plans for the site.

All structures will be removed except for the switchyard. The switchyard is required for grid operations. Structures to be removed include but are not limited to the Reactor Buildings, Auxiliary Buildings, Fuel Buildings, Service Building, Turbine Buildings, Intake and Condenser Discharge Structures. The landfill and shooting range will be remediated and closed.

The structures that may require decontamination or radiological remediation are the Reactor Buildings, Auxiliary Buildings, Hot Machine Shops, Interim Radwaste Building, Radwaste Facility, Fuel Building and the Retired Steam Generator Storage Facility and the ground floor of the Turbine Building.

The estimates presented herein include the dismantling of the major structures to a nominal depth of three feet below grade, backfilling and the collapsing of below grade voids, and general terra-forming such that the site upon which the power block and supplemental structures are located is transformed into a "grassy plain."

The estimates do not assume the remediation of any significant volume of contaminated soil. This assumption may be affected by continued plant operations and/or future regulatory actions, such as the development of site-specific release criteria.

Costs are included for the remediation and post-closure care and maintenance of the landfill and shooting range at the site. Since the care and maintenance of the landfill will extend beyond the active decommissioning period, a lump-sum perpetuity payment is included in the final year of decommissioning for the remaining duration.

#### Environmental Remediation

Oconee has a cement lined lagoon and three chemical treatment ponds that may require some remediation. The cost of such is not included within the current estimates.

### **3.6 ASSUMPTIONS**

The following are the major assumptions made in the development of the estimates for decommissioning the site.

#### **3.6.1 Estimating Basis**

The study follows the principles of ALARA through the use of work duration adjustment factors. These factors address the impact of activities such as radiological protection instruction, mock-up training, and the use of respiratory protection and protective clothing. The factors lengthen a task's duration, increasing costs and lengthening the overall schedule. ALARA planning is considered in the costs for engineering and planning, and in the development of activity specifications and detailed procedures. Changes to worker exposure limits may impact the decommissioning cost and project schedule.

#### **3.6.2 Labor Costs**

The craft labor required to decontaminate and dismantle the nuclear plant is acquired through standard site contracting practices. The current cost of labor at the site is used as an estimating basis.

Duke Energy will continue to provide site operations support, including decommissioning program management, licensing, radiological protection, and site security. Duke Energy will serve as the Decommissioning Operations Contractor, providing the supervisory staff needed to oversee the labor subcontractors, consultants, and specialty contractors needed to perform the work envisioned in the decontamination and dismantling effort. Duke Energy will also provide the engineering services needed to develop activity specifications,



detailed procedures, detailed activation analyses, and support field activities such as structural modifications. Severance and retention costs are not included in the estimate. Reduction in staff levels will be handled through normal staffing processes.

Personnel costs are based upon average salary information provided by Duke Energy. Overhead costs are included for site and corporate support, reduced commensurate with the staffing of the project.

Security, while reduced from operating levels, is maintained throughout the decommissioning for access control, material control, and to safeguard the spent fuel.

### 3.6.3 Design Conditions

Any fuel cladding failure that occurred during the lifetime of the plant is assumed to have released fission products at sufficiently low levels that the buildup of quantities of long-lived isotopes (e.g.,  $^{137}\text{Cs}$ ,  $^{90}\text{Sr}$ , or transuranics) has been prevented from reaching levels exceeding those that permit the major NSSS components to be shipped under current transportation regulations and disposal requirements.

The curie contents of the vessel and internals at final shutdown are derived from those listed in NUREG/CR-3474.<sup>[25]</sup> Actual estimates are derived from the curie/gram values contained therein and adjusted for the different mass of the Oconee components, projected operating life, and different periods of decay. Additional short-lived isotopes were derived from CR-0130<sup>[26]</sup> and CR-0672,<sup>[27]</sup> and benchmarked to the long-lived values from CR-3474.

The control elements are disposed of along with the spent fuel, i.e., there is no additional cost provided for their disposal.

Activation of the containment building structure is confined to the biological shield. More extensive activation (at very low levels) of the interior structures within containment has been detected at several reactors and the owners have elected to dispose of the affected material at a controlled facility rather than reuse the material as fill on site or send it to a landfill. The ultimate disposition of the material removed from the containment building will depend upon the site release criteria selected, as well as the designated end use for the site.

#### 3.6.4 General

##### Transition Activities

Existing warehouses are cleared of non-essential material and remain for use by Duke Energy and its subcontractors. The plant's operating staff performs the following activities at no additional cost or credit to the project during the transition period:

- Drain and collect fuel oils, lubricating oils, and transformer oils for recycle and/or sale.
- Drain and collect acids, caustics, and other chemical stores for recycle and/or sale.
- Process operating waste inventories, i.e., the estimates do not address the disposition of any legacy wastes; the disposal of operating wastes during this initial period is not considered a decommissioning expense.

##### Scrap and Salvage

The existing plant equipment is considered obsolete and suitable for scrap as deadweight quantities only. Duke Energy will make economically reasonable efforts to salvage equipment following final plant shutdown. However, dismantling techniques assumed by TLG for equipment in this analysis are not consistent with removal techniques required for salvage (resale) of equipment. Experience has indicated that some buyers wanted equipment stripped down to very specific requirements before they would consider purchase. This required expensive rework after the equipment had been removed from its installed location. Since placing a salvage value on this machinery and equipment would be speculative, and the value would be small in comparison to the overall decommissioning expenses, this analysis does not attempt to quantify the value that an owner may realize based upon those efforts.

It is assumed, for purposes of this analysis, that any value received from the sale of scrap generated in the dismantling process would be more than offset by the on-site processing costs. The dismantling techniques assumed in the decommissioning estimates do not include the additional cost for size reduction and preparation to meet "furnace ready" conditions. For example, the recovery of copper from electrical cabling may require the removal and disposition of any contaminated insulation,

an added expense. With a volatile market, the potential profit margin in scrap recovery is highly speculative, regardless of the ability to free release this material. This assumption is an implicit recognition of scrap value in the disposal of clean metallic waste at no additional cost to the project.

Furniture, tools, mobile equipment such as forklifts, trucks, bulldozers, and other property is removed at no cost or credit to the decommissioning project. Disposition may include relocation to other facilities. Spare parts are also made available for alternative use.

#### Energy

For estimating purposes, the plant is assumed to be de-energized, with the exception of those facilities associated with spent fuel storage. Replacement power costs are used to calculate the cost of energy consumed during decommissioning for tooling, lighting, ventilation, and essential services.

#### Insurance

Costs for continuing coverage (nuclear liability and property insurance) following cessation of plant operations and during decommissioning are included and based upon current operating premiums. Reductions in premiums, throughout the decommissioning process, are based upon the guidance and the limits for coverage defined in the NRC's proposed rulemaking "Financial Protection Requirements for Permanently Shutdown Nuclear Power Reactors."<sup>[28]</sup> The NRC's financial protection requirements are based on various reactor (and spent fuel) configurations.

#### Taxes

Property tax payments continue throughout the decommissioning process, although at a substantially reduced level. The rate of decrease in disbursements is consistent over the same time interval for both the DECON and SAFSTOR alternatives.

The value of plant structures and equipment decreases from 100% to 0% over an eight-year period. The property taxes are determined based on a 100% value of the plant structures and equipment for the first three years, 66.7% of the value for the next three years, 33.3% of the value for

the next three years, and 0% for the remainder of the decommissioning period.

#### Site Modifications

The perimeter fence and in-plant security barriers will be moved, as appropriate, to conform to the Site Security Plan in force during the various stages of the project.

Integrated earthworks created during the initial formation of the Lake Keowee area and integral with it will be left intact and maintained in accordance with the current dam maintenance and inspection program. The on-site dike and earthwork network forming water retention ponds and lagoons will be disabled to relieve ongoing inspection requirements.

### **3.7 COST ESTIMATE SUMMARY**

Schedules of expenditures are provided in Tables 3.2 through 3.7. The tables delineate the cost contributors by year of expenditures as well as cost contributor (e.g., labor, materials, and waste disposal).

Additional tables in Appendices C and D provide detailed costs elements. The cost elements are also assigned to one of three subcategories: "License Termination," "Spent Fuel Management," and "Site Restoration." The subcategory "License Termination" is used to accumulate costs that are consistent with "decommissioning" as defined by the NRC in its financial assurance regulations (i.e., 10 CFR §50.75). The cost reported for this subcategory is generally sufficient to terminate the plant's operating license, recognizing that there may be some additional cost impact from spent fuel management.

The "Spent Fuel Management" subcategory contains costs associated with the containerization and transfer of spent fuel from the pool to the DOE and the transfer of casks from the ISFSI to the DOE. Costs are also included for the operations of the pools and management of the ISFSI until such time that the transfer of all fuel from this facility to an off-site location (e.g., geologic repository) is complete.

"Site Restoration" is used to capture costs associated with the dismantling and demolition of buildings and facilities demonstrated to be free from contamination. This includes structures never exposed to radioactive materials, as well as those facilities that have been decontaminated to



appropriate levels. Structures are removed to a depth of three feet and backfilled to conform to local grade.

As discussed in Section 3.4.1, it is not anticipated that the DOE will accept the GTCC waste prior to completing the transfer of spent fuel. Therefore, the cost of GTCC disposal is shown in the final year of ISFSI operation (for the DECON alternative). While designated for disposal at the geologic repository along with the spent fuel, GTCC waste is still classified as low-level radioactive waste and, as such, included as a "License Termination" expense.

Decommissioning costs are reported in 2008 dollars. Costs are not inflated, escalated, or discounted over the period of expenditure (or projected lifetime of the plant). The schedules are based upon the detailed activity costs reported in Appendices C and D, along with the timeline presented in Section 4.

TABLE 3.1  
SPENT FUEL MANAGEMENT SCHEDULE

Fuel Assembly Inventory			
Year	Pool	ISFSI	DOE Acceptance
2017	1271	3819	0
2018	1271	3902	53
2019	1271	3935	103
2020	1271	3931	140
2021	1271	3970	97
2022	1271	3947	159
2023	1271	3859	224
2024	1271	3593	402
2025	1271	3355	374
2026	1271	3170	321
2027	1271	3060	246
2028	1271	2869	327
2029	1271	2762	243
2030	1271	2717	181
2031	1271	2717	136
2032	1271	2517	356
2033	1365	2517	260
2034	1365	2338	356
2035	1261	2106	336
2036	1157	1851	360
2037	1052	1599	356
2038	948	1427	276
2039	844	1255	276
2040	710	1011	356
2041	635	945	163
2042	531	693	356
2043	354	707	163
2044	177	712	172
2045	0	712	177
2046	0	510	172
2047	0	368	172
2048	0	196	172
2049	0	24	172
2050	0	0	172
Total			1 7,809

**TABLE 3.2**  
**OCONEE NUCLEAR STATION, UNIT 1**  
**DECON ALTERNATIVE**  
**SCHEDULE OF TOTAL ANNUAL EXPENDITURES**  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	38,345	3,328	1,372	2,454	7,017	52,515
2034	43,351	11,930	2,264	22,487	16,517	96,550
2035	41,652	15,972	1,446	49,400	9,441	117,911
2036	26,749	6,196	1,160	9,411	6,672	50,188
2037	25,902	5,672	1,142	7,316	6,510	46,541
2038	6,478	921	387	727	2,646	11,159
2039	4,352	401	304	6	2,223	7,288
2040	4,364	403	305	6	2,229	7,308
2041	4,352	401	304	6	2,223	7,288
2042	4,352	401	304	6	2,223	7,288
2043	4,352	401	304	6	2,223	7,288
2044	4,364	403	305	6	2,229	7,308
2045	10,049	2,800	459	2,384	3,927	19,619
2046	6,575	2,445	277	120	8,702	18,119
2047	5,597	5,393	152	0	727	11,870
2048	5,613	5,408	153	0	729	11,902
2049	521	502	14	0	68	1,106
2050	0	0	0	0	11,212	11,212
	236,971	62,978	10,654	94,334	87,520	492,457

TABLE 3.2a  
OCONEE NUCLEAR STATION, UNIT 1  
DECON ALTERNATIVE  
LICENSE TERMINATION EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	37,708	2,362	1,372	2,454	5,965	49,861
2034	42,083	11,543	2,264	22,487	15,306	93,684
2035	39,962	10,655	1,440	49,400	8,159	114,623
2036	26,107	5,928	1,160	9,411	5,497	48,103
2037	25,315	5,408	1,142	7,346	5,344	44,524
2038	2,497	533	152	722	527	4,431
2039	0	0	44	0	0	44
2040	0	0	44	0	0	44
2041	0	0	44	0	0	44
2042	0	0	44	0	0	44
2043	0	0	44	0	0	44
2044	0	0	44	0	0	44
2045	7,862	2,480	21	2,381	2,674	15,419
2046	5,317	1,196	229	120	8,586	15,448
2047	52	0	0	0	363	415
2048	52	0	0	0	307	420
2049	5	0	0	0	34	39
2050	0	0	0	0	11,212	11,212
	186,961	45,106	8,048	91,289	64,039	398,442



TABLE 3.2b  
OCONEE NUCLEAR STATION, UNIT 1  
DECON ALTERNATIVE  
SPENT FUEL MANAGEMENT EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	322	966	0	0	1,051	2,339
2034	123	368	0	0	1,166	1,657
2035	90	269	0	0	1,166	1,525
2036	86	258	0	0	1,169	1,513
2037	86	257	0	0	1,161	1,508
2038	3,932	387	274	0	2,110	6,718
2039	4,352	401	304	0	2,221	7,288
2040	4,364	408	305	0	2,229	7,308
2041	4,352	401	304	0	2,221	7,288
2042	4,352	401	304	0	2,221	7,288
2043	4,352	401	304	0	2,221	7,288
2044	4,361	403	305	0	2,229	7,308
2045	2,187	319	150	0	1,253	3,912
2046	720	51	31	0	107	908
2047	3,147	59	107	0	322	3,663
2048	3,166	69	137	0	321	3,675
2049	291	6	13	0	30	341
2050	0	0	0	0	0	0
	40,279	5,110	2,571	0	23,123	71,028

TABLE 3.2c  
OCONEE NUCLEAR STATION, UNIT 1  
DECON ALTERNATIVE  
SITE RESTORATION EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	315	0	0	0	0	315
2034	1,145	19	0	0	45	1,209
2035	1,600	48	0	0	115	1,764
2036	556	10	0	0	6	572
2037	501	8	0	0	0	509
2038	49	1	0	0	0	50
2039	0	0	0	0	0	0
2040	0	0	0	0	0	0
2041	0	0	0	0	0	0
2042	0	0	0	0	0	0
2043	0	0	0	0	0	0
2044	0	0	0	0	0	0
2045	0	0	0	0	0	0
2046	539	1,198	3	0	9	1,749
2047	2,398	5,334	15	0	40	7,786
2048	2,404	5,348	15	0	40	7,808
2049	223	497	1	0	4	725
2050	0	0	0	0	0	0
	9,731	12,462	35	0	258	22,487

TABLE 3.3  
OCONEE NUCLEAR STATION, UNIT 2  
DECON ALTERNATIVE  
SCHEDULE OF TOTAL ANNUAL EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	8,067	761	363	652	1,753	11,596
2034	33,585	4,923	1,885	3,486	10,181	54,061
2035	41,899	16,957	1,875	47,722	12,395	120,848
2036	34,888	11,645	1,268	30,736	7,867	86,405
2037	27,692	6,364	1,142	8,638	6,456	50,292
2038	15,032	3,131	688	3,956	4,144	26,950
2039	4,353	404	304	6	2,194	7,262
2040	4,365	405	305	6	2,200	7,282
2041	4,353	404	304	6	2,194	7,262
2042	4,353	404	304	6	2,194	7,262
2043	4,353	404	304	6	2,194	7,262
2044	4,365	405	305	6	2,200	7,282
2045	10,079	2,853	459	2,506	3,836	19,732
2046	6,564	2,415	277	125	8,269	17,650
2047	5,541	5,359	152	0	727	11,780
2048	5,557	5,374	153	0	729	11,812
2049	516	499	14	0	68	1,097
2050	0	0	0	0	11,212	11,212
	215,563	62,706	10,104	97,857	80,815	467,045

TABLE 3.3a  
OCONEE NUCLEAR STATION, UNIT 2  
DECON ALTERNATIVE  
LICENSE TERMINATION EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	7,983	618	363	652	1,475	11,091
2034	33,199	4,400	1,885	3,486	9,015	51,985
2035	40,089	16,646	1,875	47,722	11,154	117,487
2036	33,611	11,358	1,268	30,736	6,656	83,629
2037	27,108	6,103	1,142	8,638	5,289	48,280
2038	12,403	2,792	547	3,052	2,420	22,114
2039	0	0	46	0	0	46
2040	0	0	46	0	101	46
2041	0	0	46	0	0	46
2042	0	0	46	0	0	46
2043	0	0	46	0	0	46
2044	0	0	46	0	0	46
2045	7,891	2,532	23	2,503	2,597	15,547
2046	5,311	1,174	229	125	8,154	14,994
2047	22	0	0	0	366	389
2048	22	0	0	0	367	390
2049	2	0	0	0	34	36
2050	0	0	0	0	11,212	11,212
	117,642	45,624	7,607	97,811	58,740	377,426



TABLE 3.3b  
OCONEE NUCLEAR STATION, UNIT 2  
DECON ALTERNATIVE  
SPENT FUEL MANAGEMENT EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	48	143	0	0	278	469
2034	174	523	0	0	1,166	1,863
2035	88	263	0	0	1,166	1,517
2036	85	256	0	0	1,169	1,511
2037	85	254	0	0	1,166	1,504
2038	2,400	335	165	3	1,724	4,628
2039	4,353	404	304	6	2,194	7,262
2040	4,365	405	305	6	2,200	7,282
2041	4,353	404	304	6	2,194	7,262
2042	4,353	404	304	6	2,194	7,262
2043	4,353	404	304	6	2,194	7,262
2044	4,365	405	305	6	2,200	7,282
2045	2,187	340	150	0	1,239	3,899
2046	720	51	31	0	107	909
2047	3,147	59	137	0	322	3,665
2048	3,156	69	137	0	323	3,675
2049	293	6	13	0	30	341
2050	0	0	0	0	0	0
<b>Total</b>	<b>38,526</b>	<b>4,693</b>	<b>2,162</b>	<b>43</b>	<b>21,885</b>	<b>67,309</b>

**TABLE 3.3c**  
**OCONEE NUCLEAR STATION, UNIT 2**  
**DECON ALTERNATIVE**  
**SITE RESTORATION EXPENDITURES**  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	36	0	0	0	0	36
2034	212	0	0	0	0	212
2035	1,722	48	0	0	75	1,845
2036	1,192	31	0	0	41	1,264
2037	500	8	0	0	0	508
2038	229	4	0	0	0	232
2039	0	0	0	0	0	0
2040	0	0	0	0	0	0
2041	0	0	0	0	0	0
2042	0	0	0	0	0	0
2043	0	0	0	0	0	0
2044	0	0	0	0	0	0
2045	0	0	0	0	0	0
2046	533	1,191	3	0	9	1,736
2047	2,372	5,300	15	0	40	7,727
2048	2,378	5,314	15	0	40	7,747
2049	221	494	1	0	4	720
2050	0	0	0	0	0	0
	9,395	12,389	35	0	208	22,027

TABLE 3.4  
OCONEE NUCLEAR STATION, UNIT 3  
DECON ALTERNATIVE  
SCHEDULE OF TOTAL ANNUAL EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2034	17,163	1,468	692	1,244	3,551	24,117
2035	37,239	6,504	2,215	4,168	14,471	64,596
2036	51,756	19,953	1,533	64,148	10,887	148,278
2037	46,379	11,062	1,197	23,913	8,762	91,303
2038	45,043	8,997	1,142	14,369	8,427	77,977
2039	13,942	2,433	502	3,390	3,824	24,091
2040	4,367	411	305	6	2,412	7,501
2041	4,355	409	304	6	2,405	7,481
2042	4,355	409	304	6	2,405	7,481
2043	4,355	409	304	6	2,405	7,481
2044	4,367	411	305	6	2,412	7,501
2045	15,530	3,213	459	3,093	1,530	26,799
2046	15,756	3,759	277	152	11,078	31,023
2047	17,265	10,212	152	0	1,572	29,201
2048	17,312	10,240	153	0	1,576	29,281
2049	1,531	1,006	152	0	1,054	6,763
2050	3,537	2,064	89	2,035	1,149	21,222
	307,272	82,969	10,086	116,542	96,237	612,096

TABLE 3.4a  
OCONEE NUCLEAR STATION, UNIT 3  
DECON ALTERNATIVE  
LICENSE TERMINATION EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2034	16,998	1,180	692	1,244	2,963	23,077
2035	36,816	6,041	2,215	4,168	13,179	62,419
2036	48,260	19,587	1,533	64,148	9,495	143,023
2037	44,817	10,775	1,197	23,913	7,083	87,785
2038	43,941	8,729	1,142	14,369	6,698	74,878
2039	10,353	2,057	269	3,385	1,578	17,642
2040	0	0	0	0	0	0
2041	0	0	0	0	0	0
2042	0	0	0	0	0	0
2043	0	0	0	0	0	0
2044	0	0	0	0	0	0
2045	13,342	2,890	309	3,090	3,078	22,709
2046	11,870	1,428	243	152	10,743	24,436
2047	22	0	0	0	822	844
2048	22	0	0	0	824	847
2049	2	0	0	0	77	79
2050	0	0	0	0	11,212	11,212
	226,444	52,680	7,590	114,460	67,750	468,948



**TABLE 3.4b**  
**OCONEE NUCLEAR STATION, UNIT 3**  
**DECON ALTERNATIVE**  
**SPENT FUEL MANAGEMENT EXPENDITURES**  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2034	96	288	0	0	587	972
2035	154	463	0	0	1,292	1,909
2036	86	258	0	0	1,295	1,639
2037	83	249	0	0	1,292	1,623
2038	82	247	0	0	1,292	1,621
2039	3,348	371	233	5	2,108	6,065
2040	4,367	411	305	6	2,366	7,455
2041	4,355	409	304	6	2,360	7,435
2042	4,355	409	304	6	2,360	7,435
2043	4,355	409	304	6	2,360	7,435
2044	4,367	411	305	6	2,366	7,455
2045	2,188	323	150	3	1,384	4,048
2046	2,115	47	31	0	281	2,474
2047	9,361	43	137	0	663	10,204
2048	9,386	43	137	0	665	10,232
2049	3,815	58	151	0	910	4,934
2050	3,537	2,064	89	2,035	1,884	9,608
	56,052	6,503	2,452	2,073	25,465	92,545

TABLE 3.4c  
OCONEE NUCLEAR STATION, UNIT 3  
DECON ALTERNATIVE  
SITE RESTORATION EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2034	68	0	0	0	0	68
2035	269	0	0	0	0	269
2036	3,409	108	0	0	97	3,614
2037	1,479	38	0	0	377	1,895
2038	1,011	21	0	0	438	1,479
2039	240	5	0	0	138	383
2040	0	0	0	0	46	46
2041	0	0	0	0	45	45
2042	0	0	0	0	45	45
2043	0	0	0	0	45	45
2044	0	0	0	0	46	46
2045	0	0	0	0	45	45
2046	1,771	2,283	3	0	59	4,113
2047	7,882	10,109	15	0	87	18,153
2048	7,903	10,197	15	0	87	18,203
2049	734	947	1	0	67	1,730
2050	0	0	0	0	403	403
	24,776	23,770	35	0	2,021	30,603

TABLE 3.5  
OCONEE NUCLEAR STATION, UNIT 1  
SAFSTOR ALTERNATIVE  
SCHEDULE OF TOTAL ANNUAL EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	31,636	2,931	1,372	2,467	7,018	45,425
2034	22,924	4,427	1,038	790	11,241	40,423
2035	4,367	557	304	21	2,527	7,776
2036	4,379	559	305	21	2,534	7,797
2037	4,367	557	304	21	2,527	7,776
2038	4,367	557	304	21	2,527	7,776
2039	4,367	557	304	21	2,527	7,776
2040	4,379	559	305	21	2,534	7,797
2041	4,367	557	304	21	2,527	7,776
2042	4,367	557	304	21	2,527	7,776
2043	4,367	557	304	21	2,527	7,776
2044	4,379	559	305	21	2,534	7,797
2045	3,632	456	227	20	1,663	5,998
2046	2,017	858	152	20	822	4,269
2047	2,917	358	152	20	822	4,269
2048	2,925	359	153	20	824	4,280
2049	2,917	358	152	20	822	4,269
2050	1,756	282	152	20	603	2,873
2051	1,663	275	152	20	649	2,718
2052	1,657	275	153	20	651	2,756
2053	1,653	275	152	20	649	2,718
2054	1,653	275	152	20	649	2,718
2055	1,653	275	152	20	649	2,718
2056	1,653	275	153	20	651	2,756
2057	1,653	275	152	20	649	2,748
2058	1,653	275	152	20	649	2,748
2059	1,653	275	152	20	649	2,748
2060	1,653	275	153	20	651	2,756
2061	1,653	275	152	20	649	2,748
2062	1,653	275	152	20	649	2,748
2063	1,653	275	152	20	649	2,748
2064	1,653	275	153	20	651	2,756
2065	1,653	275	152	20	649	2,748

TABLE 3.5 (continued)  
OCONEE NUCLEAR STATION, UNIT 1  
SAFSTOR ALTERNATIVE  
SCHEDULE OF TOTAL ANNUAL EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	1,653	275	152	20	649	2,748
2067	1,653	275	152	20	649	2,748
2068	1,657	275	153	20	651	2,756
2069	1,653	275	152	20	649	2,748
2070	1,653	275	152	20	649	2,748
2071	1,653	275	152	20	649	2,748
2072	1,657	275	153	20	651	2,756
2073	1,653	275	152	20	649	2,748
2074	1,653	275	152	20	649	2,748
2075	1,653	275	152	20	649	2,748
2076	1,657	275	153	20	651	2,756
2077	1,653	275	152	20	649	2,748
2078	1,653	275	152	20	649	2,748
2079	1,653	275	152	20	649	2,748
2080	1,657	275	153	20	651	2,756
2081	1,653	275	152	20	649	2,748
2082	1,653	275	152	20	649	2,748
2083	1,653	275	152	20	649	2,748
2084	1,657	275	153	20	651	2,756
2085	1,653	275	152	20	649	2,748
2086	26,463	1,470	1,398	26	4,282	33,630
2087	33,504	9,833	1,491	21,563	8,943	75,335
2088	34,727	14,081	1,366	41,541	13,767	105,482
2089	25,376	6,620	1,142	12,573	5,241	50,952
2090	1,089	175	13	14	364	1,745
2091	820	105	0	5	310	1,240
2092	4,601	985	1,999	18	7,213	14,906
2093	5,692	4,961	167	2	1,379	12,201
2094	5,596	5,334	152	0	874	11,956
2095	2,330	2,221	63	0	106	4,720
1	3,183,404	70,416	1,177,770	80,149	113,936	5,555,675



TABLE 3.5a  
OCONEE NUCLEAR STATION, UNIT 1  
SAFSTOR ALTERNATIVE  
LICENSE TERMINATION EXPENSITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	31,313	1,961	1,372	2,467	5,967	43,080
2034	21,760	4,063	978	790	9,803	37,393
2035	1,653	286	152	21	670	2,782
2036	1,657	287	153	21	672	2,789
2037	1,653	286	152	21	670	2,782
2038	1,653	286	152	21	670	2,782
2039	1,653	286	152	21	670	2,782
2040	1,657	287	153	21	672	2,789
2041	1,653	286	152	21	670	2,782
2042	1,653	286	152	21	670	2,782
2043	1,653	286	152	21	670	2,782
2044	1,657	287	153	21	672	2,789
2045	1,653	284	152	20	670	2,779
2046	1,653	281	152	20	670	2,777
2047	1,653	281	152	20	670	2,777
2048	1,657	282	153	20	672	2,784
2049	1,653	281	152	20	670	2,777
2050	1,653	275	152	20	651	2,751
2051	1,653	275	152	20	649	2,748
2052	1,657	275	153	20	651	2,756
2053	1,653	275	152	20	649	2,748
2054	1,653	275	152	20	649	2,748
2055	1,653	275	152	20	649	2,748
2056	1,657	275	153	20	651	2,756
2057	1,653	275	152	20	649	2,748
2058	1,653	275	152	20	649	2,748
2059	1,653	275	152	20	649	2,748
2060	1,657	275	153	20	651	2,756
2061	1,653	275	152	20	649	2,748
2062	1,653	275	152	20	649	2,748
2063	1,653	275	152	20	649	2,748
2064	1,657	275	153	20	651	2,756
2065	1,653	275	152	20	649	2,748

TABLE 3.5a (continued)  
OCONEE NUCLEAR STATION, UNIT 1  
SAFSTOR ALTERNATIVE  
LICENSE TERMINATION EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	1,653	275	152	20	649	2,748
2067	1,653	275	152	20	649	2,748
2068	1,657	275	153	20	651	2,756
2069	1,653	275	152	20	649	2,748
2070	1,653	275	152	20	649	2,748
2071	1,653	275	152	20	649	2,748
2072	1,657	275	153	20	651	2,756
2073	1,653	275	152	20	649	2,748
2074	1,653	275	152	20	649	2,748
2075	1,653	275	152	20	649	2,748
2076	1,657	275	153	20	651	2,756
2077	1,653	275	152	20	649	2,748
2078	1,653	275	152	20	649	2,748
2079	1,653	275	152	20	649	2,748
2080	1,657	275	153	20	651	2,756
2081	1,653	275	152	20	649	2,748
2082	1,653	275	152	20	649	2,748
2083	1,653	275	152	20	649	2,748
2084	1,657	275	153	20	651	2,756
2085	1,653	275	152	20	649	2,748
2086	26,126	1,470	1,398	26	4,282	33,302
2087	31,980	9,810	1,491	21	8,943	73,787
2088	33,036	14,039	1,366	41,543	13,766	103,750
2089	24,578	6,607	1,142	12,573	5,241	50,042
2090	1,081	175	13	143	364	1,776
2091	820	105	0	5	310	1,241
2092	11,001	985	199	16	7,213	13,015
2093	696	139	29	2	1,172	2,238
2094	71	0	0	0	366	437
2095	29	0	0	0	152	182
	260,429	53,421	15,711	80,149	91,233	500,989

**TABLE 3.5b**  
**OCONEE NUCLEAR STATION, UNIT 1**  
**SAFSTOR ALTERNATIVE**  
**SPENT FUEL MANAGEMENT EXPENDITURES**  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	323	970	0	0	1,051	2,345
2034	1,164	365	60	0	1,440	3,030
2035	2,714	272	152	0	1,857	4,995
2036	2,722	272	153	0	1,862	5,008
2037	2,714	272	152	0	1,857	4,995
2038	2,714	272	152	0	1,857	4,995
2039	2,714	272	152	0	1,857	4,995
2040	2,722	272	153	0	1,862	5,008
2041	2,714	272	152	0	1,857	4,995
2042	2,714	272	152	0	1,857	4,995
2043	2,714	272	152	0	1,857	4,995
2044	2,722	272	153	0	1,862	5,008
2045	1,979	173	75	0	992	3,219
2046	1,264	76	0	0	151	1,492
2047	1,264	76	0	0	151	1,492
2048	1,268	76	0	0	152	1,496
2049	1,264	76	0	0	151	1,492
2050	104	6	0	0	12	123
2051	0	0	0	0	0	0
2052	0	0	0	0	0	0
2053	0	0	0	0	0	0
2054	0	0	0	0	0	0
2055	0	0	0	0	0	0
2056	0	0	0	0	0	0
2057	0	0	0	0	0	0
2058	0	0	0	0	0	0
2059	0	0	0	0	0	0
2060	0	0	0	0	0	0
2061	0	0	0	0	0	0
2062	0	0	0	0	0	0
2063	0	0	0	0	0	0
2064	0	0	0	0	0	0
2065	0	0	0	0	0	0

TABLE 3.5b (continued)  
OCONEE NUCLEAR STATION, UNIT 1  
SAFSTOR ALTERNATIVE  
SPENT FUEL MANAGEMENT EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	0	0	0	0	0	0
2067	0	0	0	0	0	0
2068	0	0	0	0	0	0
2069	0	0	0	0	0	0
2070	0	0	0	0	0	0
2071	0	0	0	0	0	0
2072	0	0	0	0	0	0
2073	0	0	0	0	0	0
2074	0	0	0	0	0	0
2075	0	0	0	0	0	0
2076	0	0	0	0	0	0
2077	0	0	0	0	0	0
2078	0	0	0	0	0	0
2079	0	0	0	0	0	0
2080	0	0	0	0	0	0
2081	0	0	0	0	0	0
2082	0	0	0	0	0	0
2083	0	0	0	0	0	0
2084	0	0	0	0	0	0
2085	0	0	0	0	0	0
2086	0	0	0	0	0	0
2087	0	0	0	0	0	0
2088	0	0	0	0	0	0
2089	0	0	0	0	0	0
2090	0	0	0	0	0	0
2091	0	0	0	0	0	0
2092	0	0	0	0	0	0
2093	0	0	0	0	0	0
2094	0	0	0	0	0	0
2095	0	0	0	0	0	0
	35,795	4,537	1,659	0	22,684	64,675



TABLE 3.5c  
OCONEE NUCLEAR STATION, UNIT 1  
SAFSTOR ALTERNATIVE  
SITE RESTORATION EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	0	0	0	0	0	0
2034	0	0	0	0	0	0
2035	0	0	0	0	0	0
2036	0	0	0	0	0	0
2037	0	0	0	0	0	0
2038	0	0	0	0	0	0
2039	0	0	0	0	0	0
2040	0	0	0	0	0	0
2041	0	0	0	0	0	0
2042	0	0	0	0	0	0
2043	0	0	0	0	0	0
2044	0	0	0	0	0	0
2045	0	0	0	0	0	0
2046	0	0	0	0	0	0
2047	0	0	0	0	0	0
2048	0	0	0	0	0	0
2049	0	0	0	0	0	0
2050	0	0	0	0	0	0
2051	0	0	0	0	0	0
2052	0	0	0	0	0	0
2053	0	0	0	0	0	0
2054	0	0	0	0	0	0
2055	0	0	0	0	0	0
2056	0	0	0	0	0	0
2057	0	0	0	0	0	0
2058	0	0	0	0	0	0
2059	0	0	0	0	0	0
2060	0	0	0	0	0	0
2061	0	0	0	0	0	0
2062	0	0	0	0	0	0
2063	0	0	0	0	0	0
2064	0	0	0	0	0	0
2065	0	0	0	0	0	0

TABLE 3.5c (continued)  
OCONEE NUCLEAR STATION, UNIT 1  
SAFSTOR ALTERNATIVE  
SITE RESTORATION EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	0	0	0	0	0	0
2067	0	0	0	0	0	0
2068	0	0	0	0	0	0
2069	0	0	0	0	0	0
2070	0	0	0	0	0	0
2071	0	0	0	0	0	0
2072	0	0	0	0	0	0
2073	0	0	0	0	0	0
2074	0	0	0	0	0	0
2075	0	0	0	0	0	0
2076	0	0	0	0	0	0
2077	0	0	0	0	0	0
2078	0	0	0	0	0	0
2079	0	0	0	0	0	0
2080	0	0	0	0	0	0
2081	0	0	0	0	0	0
2082	0	0	0	0	0	0
2083	0	0	0	0	0	0
2084	0	0	0	0	0	0
2085	0	0	0	0	0	0
2086	337	0	0	0	0	337
2087	1,524	24	0	0	0	1,547
2088	1,691	15	0	0	1	1,706
2089	798	13	0	0	0	810
2090	9	0	0	0	0	9
2091	0	0	0	0	0	0
2092	0	0	0	0	0	0
2093	4,996	4,822	138	0	7	9,963
2094	5,525	5,334	152	0	8	11,019
2095	2,301	2,221	63	0	3	4,589
	17,180	12,458	353	0	19	30,011

TABLE 3.6  
OCONEE NUCLEAR STATION, UNIT 2  
SAFSTOR ALTERNATIVE  
SCHEDULE OF TOTAL ANNUAL EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	6,676	653	363	652	1,668	10,012
2034	28,868	4,737	1,522	2,313	12,159	49,599
2035	10,655	1,604	628	294	3,904	17,086
2036	4,377	558	305	21	2,454	7,715
2037	4,365	556	304	21	2,447	7,694
2038	4,365	556	304	21	2,447	7,694
2039	4,365	556	304	21	2,447	7,694
2040	4,377	558	305	21	2,454	7,715
2041	4,365	556	304	21	2,447	7,694
2042	4,365	556	304	21	2,447	7,694
2043	4,365	556	304	21	2,447	7,694
2044	4,377	558	305	21	2,454	7,715
2045	2,790	450	227	20	1,523	5,010
2046	1,258	346	152	19	624	2,399
2047	1,258	346	152	19	624	2,399
2048	1,261	347	153	20	626	2,406
2049	1,258	346	152	19	624	2,399
2050	1,010	276	152	19	572	2,030
2051	988	270	152	19	568	1,997
2052	991	271	153	20	569	2,003
2053	988	270	152	19	568	1,997
2054	988	270	152	19	568	1,997
2055	988	270	152	19	568	1,997
2056	991	271	153	20	569	2,003
2057	988	270	152	19	568	1,997
2058	988	270	152	19	568	1,997
2059	988	270	152	19	568	1,997
2060	991	271	153	20	569	2,003
2061	988	270	152	19	568	1,997
2062	988	270	152	19	568	1,997
2063	988	270	152	19	568	1,997
2064	991	271	153	20	569	2,003
2065	988	270	152	19	568	1,997

TABLE 3.6 (continued)  
OCONEE NUCLEAR STATION, UNIT 2  
SAFSTOR ALTERNATIVE  
SCHEDULE OF TOTAL ANNUAL EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	988	270	152	19	568	1,997
2067	988	270	152	19	568	1,997
2068	991	271	153	20	569	2,003
2069	988	270	152	19	568	1,997
2070	988	270	152	19	568	1,997
2071	988	270	152	19	568	1,997
2072	991	271	153	20	569	2,003
2073	988	270	152	19	568	1,997
2074	988	270	152	19	568	1,997
2075	988	270	152	19	568	1,997
2076	991	271	153	20	569	2,003
2077	988	270	152	19	568	1,997
2078	988	270	152	19	568	1,997
2079	988	270	152	19	568	1,997
2080	991	271	153	20	569	2,003
2081	988	270	152	19	568	1,997
2082	988	270	152	19	568	1,997
2083	988	270	152	19	568	1,997
2084	991	271	153	20	569	2,003
2085	988	270	152	19	568	1,997
2086	988	270	152	19	568	1,997
2087	16,046	1,265	1,207	24	2,367	20,909
2088	26,291	8,635	1,506	18,013	7,352	61,799
2089	35,977	16,469	1,138	46,961	14,598	114,342
2090	25,965	6,775	1,142	11,128	5,063	52,072
2091	1,701	964	53	616	819	3,596
2092	4,601	964	199	16	6,835	12,616
2093	5,611	1,027	167	2	1,324	12,052
2094	5,530	5,300	152	0	374	11,356
2095	2,303	2,207	63	0	1,261	4,729
	254,293	69,797	17,556	83,024	103,404	528,074



TABLE 3.6a  
OCONEE NUCLEAR STATION, UNIT 2  
SAFSTOR ALTERNATIVE  
LICENSE TERMINATION EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	6,629	510	363	652	1,390	9,543
2034	28,692	4,209	1,522	2,313	10,992	47,729
2035	8,153	1,336	516	294	2,221	12,520
2036	991	286	153	21	578	2,029
2037	988	285	152	21	577	2,023
2038	988	285	152	21	577	2,023
2039	988	285	152	21	577	2,023
2040	991	286	153	21	578	2,029
2041	988	285	152	21	577	2,023
2042	988	285	152	21	577	2,023
2043	988	285	152	21	577	2,023
2044	991	286	153	21	578	2,029
2045	988	278	152	20	577	2,015
2046	988	270	152	19	577	2,006
2047	988	270	152	19	577	2,006
2048	991	271	153	20	578	2,012
2049	988	270	152	19	577	2,006
2050	988	270	152	19	568	1,998
2051	988	270	152	19	568	1,997
2052	991	271	153	20	569	2,003
2053	988	270	152	19	568	1,997
2054	988	270	152	19	568	1,997
2055	988	270	152	19	568	1,997
2056	991	271	153	20	569	2,003
2057	988	270	152	19	568	1,997
2058	988	270	152	19	568	1,997
2059	988	270	152	19	568	1,997
2060	991	271	153	20	569	2,003
2061	988	270	152	19	568	1,997
2062	988	270	152	19	568	1,997
2063	988	270	152	19	568	1,997
2064	991	271	153	20	569	2,003
2065	988	270	152	19	568	1,997

**TABLE 3.6a (continued)**  
**OCONEE NUCLEAR STATION, UNIT 2**  
**SAFSTOR ALTERNATIVE**  
**LICENSE TERMINATION EXPENDITURES**  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	988	270	152	19	568	1,997
2067	988	270	152	19	568	1,997
2068	991	271	153	20	569	2,003
2069	988	270	152	19	568	1,997
2070	988	270	152	19	568	1,997
2071	988	270	152	19	568	1,997
2072	991	271	153	20	569	2,003
2073	988	270	152	19	568	1,997
2074	988	270	152	19	568	1,997
2075	988	270	152	19	568	1,997
2076	991	271	153	20	569	2,003
2077	988	270	152	19	568	1,997
2078	988	270	152	19	568	1,997
2079	988	270	152	19	568	1,997
2080	991	271	153	20	569	2,003
2081	988	270	152	19	568	1,997
2082	988	270	152	19	568	1,997
2083	988	270	152	19	568	1,997
2084	991	271	153	20	569	2,003
2085	988	270	152	19	568	1,997
2086	988	270	152	19	568	1,997
2087	15,924	1,265	1,207	24	2,367	20,787
2088	25,228	8,614	1,506	18,013	7,352	60,712
2089	33,958	15,415	1,338	46,961	14,597	112,269
2090	25,232	6,763	1,142	13,128	5,063	51,328
2091	1,957	415	53	616	519	3,561
2092	4,601	964	199	16	6,835	12,616
2093	659	136	29	2	1,317	2,143
2094	30	0	0	0	366	396
2095	13	0	0	0	152	165
2015-2071	53,549	15,644	83,024	82,269	435,993	

TABLE 3.6b  
OCONEE NUCLEAR STATION, UNIT 2  
SAFSTOR ALTERNATIVE  
SPENT FUEL MANAGEMENT EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	48	143	0	0	278	469
2034	176	528	0	0	1,166	1,870
2035	2,503	268	112	0	1,683	4,566
2036	3,386	272	153	0	1,876	5,686
2037	3,377	271	152	0	1,870	5,671
2038	3,377	271	152	0	1,870	5,671
2039	3,377	271	152	0	1,870	5,671
2040	3,386	272	153	0	1,876	5,686
2041	3,377	271	152	0	1,870	5,671
2042	3,377	271	152	0	1,870	5,671
2043	3,377	271	152	0	1,870	5,671
2044	3,386	272	153	0	1,876	5,686
2045	1,802	172	75	0	946	2,996
2046	269	76	0	0	47	393
2047	269	76	0	0	47	393
2048	270	76	0	0	47	394
2049	269	76	0	0	47	393
2050	22	6	0	0	4	32
2051	0	0	0	0	0	0
2052	0	0	0	0	0	0
2053	0	0	0	0	0	0
2054	0	0	0	0	0	0
2055	0	0	0	0	0	0
2056	0	0	0	0	0	0
2057	0	0	0	0	0	0
2058	0	0	0	0	0	0
2059	0	0	0	0	0	0
2060	0	0	0	0	0	0
2061	0	0	0	0	0	0
2062	0	0	0	0	0	0
2063	0	0	0	0	0	0
2064	0	0	0	0	0	0
2065	0	0	0	0	0	0

TABLE 3.6b (continued)  
OCONEE NUCLEAR STATION, UNIT 2  
SAFSTOR ALTERNATIVE  
SPENT FUEL MANAGEMENT EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	0	0	0	0	0	0
2067	0	0	0	0	0	0
2068	0	0	0	0	0	0
2069	0	0	0	0	0	0
2070	0	0	0	0	0	0
2071	0	0	0	0	0	0
2072	0	0	0	0	0	0
2073	0	0	0	0	0	0
2074	0	0	0	0	0	0
2075	0	0	0	0	0	0
2076	0	0	0	0	0	0
2077	0	0	0	0	0	0
2078	0	0	0	0	0	0
2079	0	0	0	0	0	0
2080	0	0	0	0	0	0
2081	0	0	0	0	0	0
2082	0	0	0	0	0	0
2083	0	0	0	0	0	0
2084	0	0	0	0	0	0
2085	0	0	0	0	0	0
2086	0	0	0	0	0	0
2087	0	0	0	0	0	0
2088	0	0	0	0	0	0
2089	0	0	0	0	0	0
2090	0	0	0	0	0	0
2091	0	0	0	0	0	0
2092	0	0	0	0	0	0
2093	0	0	0	0	0	0
2094	0	0	0	0	0	0
2095	0	0	0	0	0	0
	36,051	3,862	1,568	0	211,111	62,588



TABLE 3.6c  
OCONEE NUCLEAR STATION, UNIT 2  
SAFSTOR ALTERNATIVE  
SITE RESTORATION EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2033	0	0	0	0	0	0
2034	0	0	0	0	0	0
2035	0	0	0	0	0	0
2036	0	0	0	0	0	0
2037	0	0	0	0	0	0
2038	0	0	0	0	0	0
2039	0	0	0	0	0	0
2040	0	0	0	0	0	0
2041	0	0	0	0	0	0
2042	0	0	0	0	0	0
2043	0	0	0	0	0	0
2044	0	0	0	0	0	0
2045	0	0	0	0	0	0
2046	0	0	0	0	0	0
2047	0	0	0	0	0	0
2048	0	0	0	0	0	0
2049	0	0	0	0	0	0
2050	0	0	0	0	0	0
2051	0	0	0	0	0	0
2052	0	0	0	0	0	0
2053	0	0	0	0	0	0
2054	0	0	0	0	0	0
2055	0	0	0	0	0	0
2056	0	0	0	0	0	0
2057	0	0	0	0	0	0
2058	0	0	0	0	0	0
2059	0	0	0	0	0	0
2060	0	0	0	0	0	0
2061	0	0	0	0	0	0
2062	0	0	0	0	0	0
2063	0	0	0	0	0	0
2064	0	0	0	0	0	0
2065	0	0	0	0	0	0

TABLE 3.6c (continued)  
OCONEE NUCLEAR STATION, UNIT 2  
SAFSTOR ALTERNATIVE  
SITE RESTORATION EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2066	0	0	0	0	0	0
2067	0	0	0	0	0	0
2068	0	0	0	0	0	0
2069	0	0	0	0	0	0
2070	0	0	0	0	0	0
2071	0	0	0	0	0	0
2072	0	0	0	0	0	0
2073	0	0	0	0	0	0
2074	0	0	0	0	0	0
2075	0	0	0	0	0	0
2076	0	0	0	0	0	0
2077	0	0	0	0	0	0
2078	0	0	0	0	0	0
2079	0	0	0	0	0	0
2080	0	0	0	0	0	0
2081	0	0	0	0	0	0
2082	0	0	0	0	0	0
2083	0	0	0	0	0	0
2084	0	0	0	0	0	0
2085	0	0	0	0	0	0
2086	0	0	0	0	0	0
2087	122	0	0	0	0	122
2088	1,066	21	0	0	0	1,088
2089	2,019	54	0	0	0	2,073
2090	732	12	0	0	0	744
2091	34	1	0	0	0	35
2092	0	0	0	0	0	0
2093	4,972	4,791	138	0	7	9,908
2094	5,499	5,300	152	0	8	10,959
2095	2,290	2,207	63	0	3	4,564
	16,735	12,385	353	0	19	29,492

TABLE 3.7  
OCONEE NUCLEAR STATION, UNIT 3  
SAFSTOR ALTERNATIVE  
SCHEDULE OF TOTAL ANNUAL EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2034	14,510	1,023	692	1,244	3,647	21,116
2035	33,652	5,583	1,522	2,036	14,987	57,780
2036	5,754	751	365	79	2,924	9,873
2037	4,394	567	304	21	2,681	7,966
2038	4,394	567	304	21	2,681	7,966
2039	4,394	567	304	21	2,681	7,966
2040	4,406	568	305	21	2,681	7,988
2041	4,394	567	304	21	2,681	7,966
2042	4,394	567	304	21	2,681	7,966
2043	4,394	567	304	21	2,681	7,966
2044	4,406	568	305	21	2,681	7,988
2045	2,819	462	227	20	1,730	5,288
2046	1,287	359	152	19	854	2,673
2047	1,287	359	152	19	854	2,673
2048	1,290	360	153	20	857	2,680
2049	1,287	359	152	19	854	2,673
2050	1,038	286	152	19	596	2,092
2051	1,016	279	152	19	573	2,040
2052	1,019	280	153	20	575	2,046
2053	1,016	279	152	19	573	2,040
2054	1,016	279	152	19	573	2,040
2055	1,016	279	152	19	573	2,040
2056	1,019	280	153	20	575	2,046
2057	1,016	279	152	19	573	2,040
2058	1,016	279	152	19	573	2,040
2059	1,016	279	152	19	573	2,040
2060	1,019	280	153	20	575	2,046
2061	1,016	279	152	19	573	2,040
2062	1,016	279	152	19	573	2,040
2063	1,016	279	152	19	573	2,040
2064	1,019	280	153	20	575	2,046
2065	1,016	279	152	19	573	2,040
2066	1,016	279	152	19	573	2,040

TABLE 3.7 (continued)  
OCONEE NUCLEAR STATION, UNIT 3  
SAFSTOR ALTERNATIVE  
SCHEDULE OF TOTAL ANNUAL EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2067	1,016	279	152	19	573	2,040
2068	1,019	280	153	20	575	2,046
2069	1,016	279	152	19	573	2,040
2070	1,016	279	152	19	573	2,040
2071	1,016	279	152	19	573	2,040
2072	1,019	280	153	20	575	2,046
2073	1,016	279	152	19	573	2,040
2074	1,016	279	152	19	573	2,040
2075	1,016	279	152	19	573	2,040
2076	1,019	280	153	20	575	2,046
2077	1,016	279	152	19	573	2,040
2078	1,016	279	152	19	573	2,040
2079	1,016	279	152	19	573	2,040
2080	1,019	280	153	20	575	2,046
2081	1,016	279	152	19	573	2,040
2082	1,016	279	152	19	573	2,040
2083	1,016	279	152	19	573	2,040
2084	1,019	280	153	20	575	2,046
2085	1,016	279	152	19	573	2,040
2086	1,016	279	152	19	573	2,040
2087	1,016	279	152	19	573	2,040
2088	19,677	1,373	1,320	25	2,562	24,956
2089	31,436	10,536	1,495	24,861	8,770	77,098
2090	44,059	15,975	1,314	47,328	14,241	122,916
2091	40,012	8,867	1,142	17,574	6,658	74,253
2092	22,372	4,218	597	6,131	11,160	44,478
2093	14,730	9,679	167	2	1,977	26,555
2094	14,923	10,522	152	0	754	26,351
2095	6,215	4,382	63	0	314	10,974
<b>1</b>	<b>329,144</b>	<b>89,969</b>	<b>17,892</b>	<b>100,282</b>	<b>116,450</b>	<b>653,737</b>



TABLE 3.7a  
OCONEE NUCLEAR STATION, UNIT 3  
SAFSTOR ALTERNATIVE  
LICENSE TERMINATION EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2034	14,414	734	692	1,244	2,650	19,735
2035	33,498	5,120	1,522	2,036	13,183	55,360
2036	2,529	479	220	79	858	4,165
2037	1,016	295	152	21	582	2,066
2038	1,016	295	152	21	582	2,066
2039	1,016	295	152	21	582	2,066
2040	1,019	296	153	21	584	2,072
2041	1,016	295	152	21	582	2,066
2042	1,016	295	152	21	582	2,066
2043	1,016	295	152	21	582	2,066
2044	1,019	296	153	21	584	2,072
2045	1,016	287	152	20	582	2,058
2046	1,016	279	152	19	582	2,049
2047	1,016	279	152	19	582	2,049
2048	1,019	280	153	20	584	2,055
2049	1,016	279	152	19	582	2,049
2050	1,016	279	152	19	574	2,041
2051	1,016	279	152	19	573	2,040
2052	1,019	280	153	20	575	2,046
2053	1,016	279	152	19	573	2,040
2054	1,016	279	152	19	573	2,040
2055	1,016	279	152	19	573	2,040
2056	1,019	280	153	20	575	2,046
2057	1,016	279	152	19	573	2,040
2058	1,016	279	152	19	573	2,040
2059	1,016	279	152	19	573	2,040
2060	1,019	280	153	20	575	2,046
2061	1,016	279	152	19	573	2,040
2062	1,016	279	152	19	573	2,040
2063	1,016	279	152	19	573	2,040
2064	1,019	280	153	20	575	2,046
2065	1,016	279	152	19	573	2,040
2066	1,016	279	152	19	573	2,040

TABLE 3.7a (continued)  
OCONEE NUCLEAR STATION, UNIT 3  
SAFSTOR ALTERNATIVE  
LICENSE TERMINATION EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2067	1,016	279	152	19	573	2,040
2068	1,019	280	153	20	575	2,046
2069	1,016	279	152	19	573	2,040
2070	1,016	279	152	19	573	2,040
2071	1,016	279	152	19	573	2,040
2072	1,019	280	153	20	575	2,046
2073	1,016	279	152	19	573	2,040
2074	1,016	279	152	19	573	2,040
2075	1,016	279	152	19	573	2,040
2076	1,019	280	153	20	575	2,046
2077	1,016	279	152	19	573	2,040
2078	1,016	279	152	19	573	2,040
2079	1,016	279	152	19	573	2,040
2080	1,019	280	153	20	575	2,046
2081	1,016	279	152	19	573	2,040
2082	1,016	279	152	19	573	2,040
2083	1,016	279	152	19	573	2,040
2084	1,019	280	153	20	575	2,046
2085	1,016	279	152	19	573	2,040
2086	1,016	279	152	19	573	2,040
2087	1,016	279	152	19	573	2,040
2088	19,542	1,373	1,320	25	2,562	24,821
2089	29,579	10,488	1,495	24,861	8,770	75,192
2090	40,518	15,704	1,314	46,831	13,863	118,229
2091	37,574	8,420	1,142	16,434	5,792	69,362
2092	21,524	4,063	597	5,734	10,859	42,776
2093	1,265	166	29	2	1,951	3,413
2094	30	0	0	0	725	755
2095	13	0	0	0	302	315
	252,342	60,927	16,100	98,247	90,881	518,504

**TABLE 3.7b**  
**OCONEE NUCLEAR STATION, UNIT 3**  
**SAFSTOR ALTERNATIVE**  
**SPENT FUEL MANAGEMENT EXPENDITURES**  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2034	96	288	0	0	587	972
2035	154	463	0	0	1,292	1,909
2036	3,224	272	145	0	2,021	5,663
2037	3,378	272	152	0	2,053	5,855
2038	3,378	272	152	0	2,053	5,855
2039	3,378	272	152	0	2,053	5,855
2040	3,387	273	153	0	2,059	5,871
2041	3,378	272	152	0	2,053	5,855
2042	3,378	272	152	0	2,053	5,855
2043	3,378	272	152	0	2,053	5,855
2044	3,387	273	153	0	2,059	5,871
2045	1,803	175	75	0	1,100	3,153
2046	271	80	0	0	173	524
2047	271	80	0	0	173	524
2048	272	80	0	0	173	525
2049	271	80	0	0	173	524
2050	22	7	0	0	14	43
2051	0	0	0	0	0	0
2052	0	0	0	0	0	0
2053	0	0	0	0	0	0
2054	0	0	0	0	0	0
2055	0	0	0	0	0	0
2056	0	0	0	0	0	0
2057	0	0	0	0	0	0
2058	0	0	0	0	0	0
2059	0	0	0	0	0	0
2060	0	0	0	0	0	0
2061	0	0	0	0	0	0
2062	0	0	0	0	0	0
2063	0	0	0	0	0	0
2064	0	0	0	0	0	0
2065	0	0	0	0	0	0
2066	0	0	0	0	0	0

**TABLE 3.7b** (continued)  
**OCONEE NUCLEAR STATION, UNIT 3**  
**SAFSTOR ALTERNATIVE**  
**SPENT FUEL MANAGEMENT EXPENDITURES**  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2067	0	0	0	0	0	0
2068	0	0	0	0	0	0
2069	0	0	0	0	0	0
2070	0	0	0	0	0	0
2071	0	0	0	0	0	0
2072	0	0	0	0	0	0
2073	0	0	0	0	0	0
2074	0	0	0	0	0	0
2075	0	0	0	0	0	0
2076	0	0	0	0	0	0
2077	0	0	0	0	0	0
2078	0	0	0	0	0	0
2079	0	0	0	0	0	0
2080	0	0	0	0	0	0
2081	0	0	0	0	0	0
2082	0	0	0	0	0	0
2083	0	0	0	0	0	0
2084	0	0	0	0	0	0
2085	0	0	0	0	0	0
2086	0	0	0	0	0	0
2087	0	0	0	0	0	0
2088	0	0	0	0	0	0
2089	0	0	0	0	0	0
2090	550	184	0	497	377	1,608
2091	1,263	423	0	1,141	866	3,692
2092	439	147	0	397	301	1,285
2093	127	316	0	0	18	461
2094	140	350	0	0	19	510
2095	58	146	0	0	8	212
	<b>36,001</b>	<b>5,269</b>	<b>1,439</b>	<b>2,031</b>	<b>23,728</b>	<b>68,471</b>



**TABLE 3.7c**  
**OCONEE NUCLEAR STATION, UNIT 3**  
**SAFSTOR ALTERNATIVE**  
**SITE RESTORATION EXPENDITURES**  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2034	0	0	0	0	409	409
2035	0	0	0	0	512	512
2036	0	0	0	0	46	46
2037	0	0	0	0	45	45
2038	0	0	0	0	45	45
2039	0	0	0	0	45	45
2040	0	0	0	0	46	46
2041	0	0	0	0	45	45
2042	0	0	0	0	45	45
2043	0	0	0	0	45	45
2044	0	0	0	0	46	46
2045	0	0	0	0	73	73
2046	0	0	0	0	100	100
2047	0	0	0	0	100	100
2048	0	0	0	0	100	100
2049	0	0	0	0	100	100
2050	0	0	0	0	8	8
2051	0	0	0	0	0	0
2052	0	0	0	0	0	0
2053	0	0	0	0	0	0
2054	0	0	0	0	0	0
2055	0	0	0	0	0	0
2056	0	0	0	0	0	0
2057	0	0	0	0	0	0
2058	0	0	0	0	0	0
2059	0	0	0	0	0	0
2060	0	0	0	0	0	0
2061	0	0	0	0	0	0
2062	0	0	0	0	0	0
2063	0	0	0	0	0	0
2064	0	0	0	0	0	0
2065	0	0	0	0	0	0
2066	0	0	0	0	0	0

TABLE 3.7c (continued)  
OCONEE NUCLEAR STATION, UNIT 3  
SAFSTOR ALTERNATIVE  
SITE RESTORATION EXPENDITURES  
(thousands, 2008 dollars)

Year	Labor	Equipment & Materials	Energy	Burial	Other	Total
2067	0	0	0	0	0	0
2068	0	0	0	0	0	0
2069	0	0	0	0	0	0
2070	0	0	0	0	0	0
2071	0	0	0	0	0	0
2072	0	0	0	0	0	0
2073	0	0	0	0	0	0
2074	0	0	0	0	0	0
2075	0	0	0	0	0	0
2076	0	0	0	0	0	0
2077	0	0	0	0	0	0
2078	0	0	0	0	0	0
2079	0	0	0	0	0	0
2080	0	0	0	0	0	0
2081	0	0	0	0	0	0
2082	0	0	0	0	0	0
2083	0	0	0	0	0	0
2084	0	0	0	0	0	0
2085	0	0	0	0	0	0
2086	0	0	0	0	0	0
2087	0	0	0	0	0	0
2088	135	0	0	0	0	135
2089	1,858	48	0	0	0	1,906
2090	2,991	87	0	0	0	3,079
2091	1,174	24	0	0	0	1,199
2092	409	8	0	0	0	417
2093	13,338	9,197	138	0	9	22,681
2094	14,753	10,172	152	0	9	25,086
2095	6,144	4,236	63	0	4	10,447
	40,801	23,772	353	0	1,833	66,760

## **4. SCHEDULE ESTIMATE**

The schedules for the decommissioning scenarios considered in this study follow the sequences presented in the AIF/NESP-036 study, with minor changes to reflect recent experience and site-specific constraints. In addition, the scheduling has been revised to reflect the spent fuel management plan described in Section 3.5.1.

A schedule or sequence of activities for the DECON alternative from shutdown through ISFSI restoration is presented in Figure 4.1. The scheduling sequence is based on the fuel being removed from the spent fuel pools within twelve years. The key activities listed in the schedule do not reflect a one-to-one correspondence with those activities in the cost tables, but reflect dividing some activities for clarity and combining others for convenience. The schedule was prepared using the "Microsoft Project Professional 2003" computer software.<sup>[29]</sup>

### **4.1 SCHEDULE ESTIMATE ASSUMPTIONS**

The schedule reflects the results of a precedence network developed for the site decommissioning activities, i.e., a PERT (Program Evaluation and Review Technique) Software Package. The work activity durations used in the precedence network reflect the actual man-hour estimates from the cost table, adjusted by stretching certain activities over their slack range and shifting the start and end dates of others. The following assumptions were made in the development of the decommissioning schedule:

- The Fuel Building is isolated until such time that all spent fuel has been discharged from the spent fuel pools to the DOE. Decontamination and dismantling of the storage pools is initiated once the transfer of spent fuel is complete (DECON option).
- All work (except vessel and internals removal) is performed during an 8-hour workday, 5 days per week, with no overtime. There are eleven paid holidays per year.
- Reactor and internals removal activities are performed by using separate crews for different activities working on different shifts, with a corresponding backshift charge for the second shift.
- Multiple crews work parallel activities to the maximum extent possible, consistent with optimum efficiency, adequate access for cutting, removal and laydown space, and with the stringent safety measures necessary during demolition of heavy components and structures.

- For plant systems removal, the systems with the longest removal durations in areas on the critical path are considered to determine the duration of the activity.

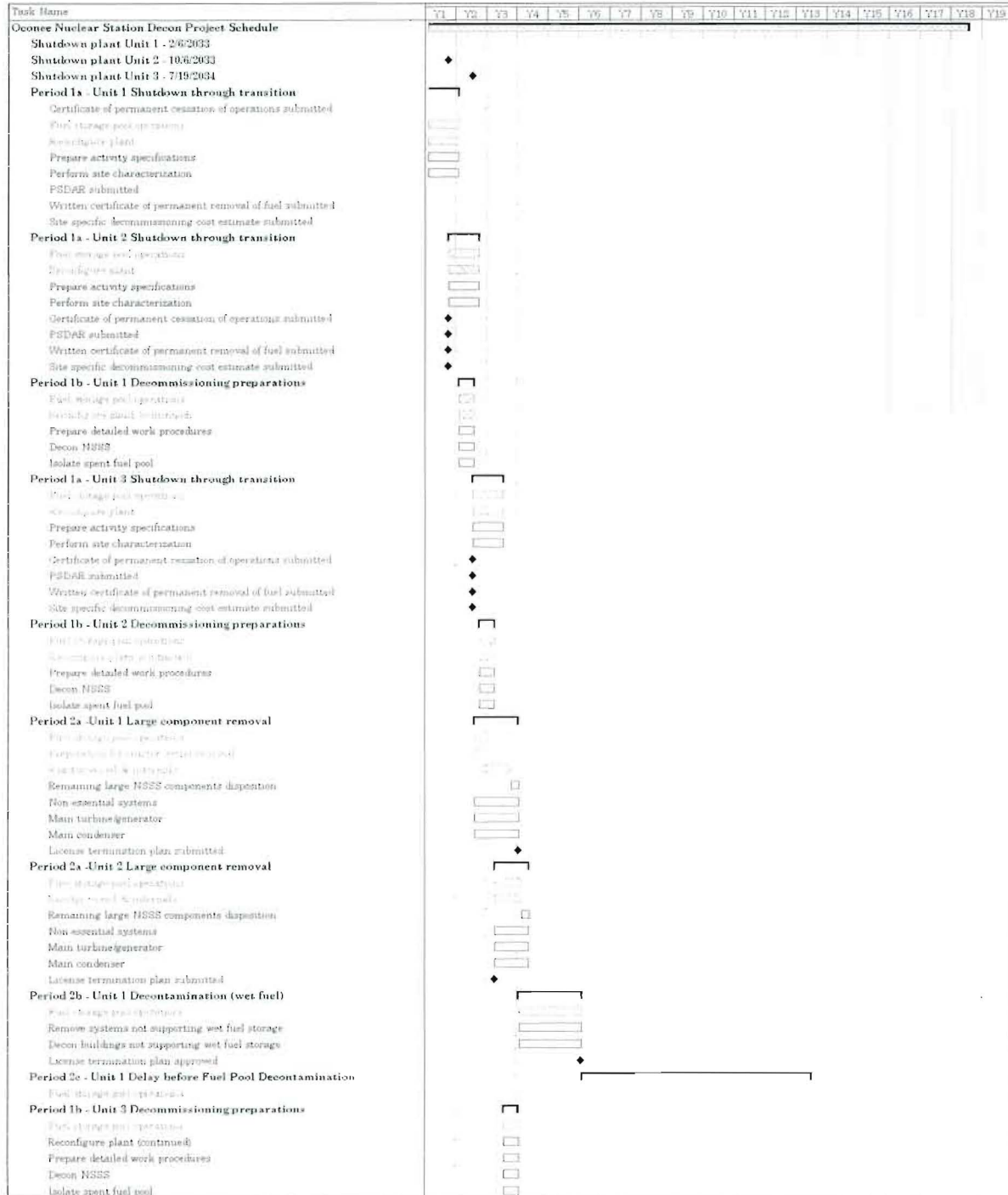
## **4.2 PROJECT SCHEDULE**

The period-dependent costs presented in the detailed cost tables are based upon the durations developed in the schedules for decommissioning. Durations are established between several milestones in each project period; these durations are used to establish a critical path for the entire project. In turn, the critical path duration for each period is used as the basis for determining the period-dependent costs. A second critical path is shown for the spent fuel storage period, which determines the release of the Fuel Building for final decontamination.

Project timelines are provided in Figures 4.2 and 4.3 with milestone dates based on the 2033 and 2034 shutdown dates. The fuel pools are emptied approximately twelve years after shutdown, while ISFSI operations continue until the DOE can complete the transfer of assemblies to its geologic repository. Deferred decommissioning in the SAFSTOR scenarios is assumed to commence so that the operating licenses are terminated within a 60-year period from the cessation of plant operations.



FIGURE 4.1  
ACTIVITY SCHEDULE



[illegible]

- 1. Red text and/or shaded scheduling bars indicate critical path activities
- 2. Shaded scheduling bars associated with major decommissioning periods, e.g., Period 1a, indicate overall duration of that period
- 3. Blue text and/or diamond symbols indicate major milestones

FIGURE 4.2  
DECOMMISSIONING TIMELINE  
DECON

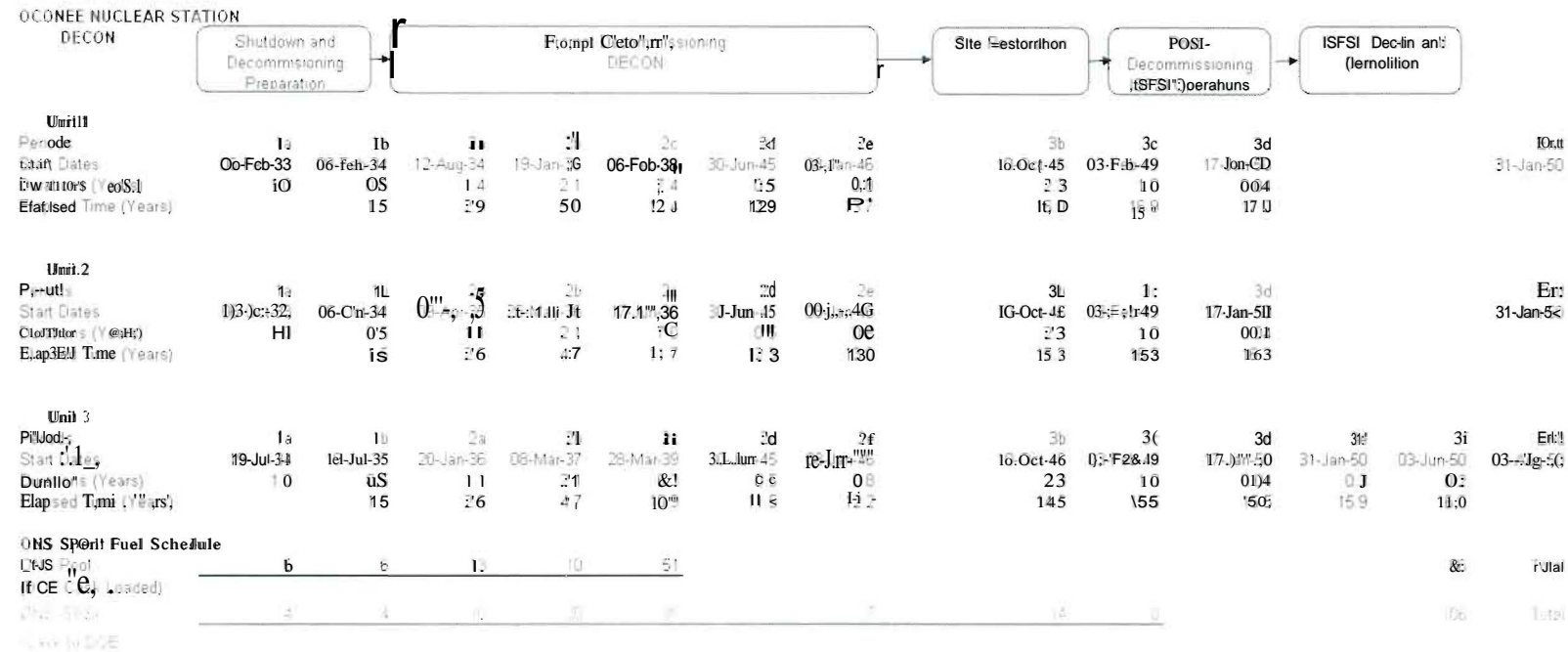
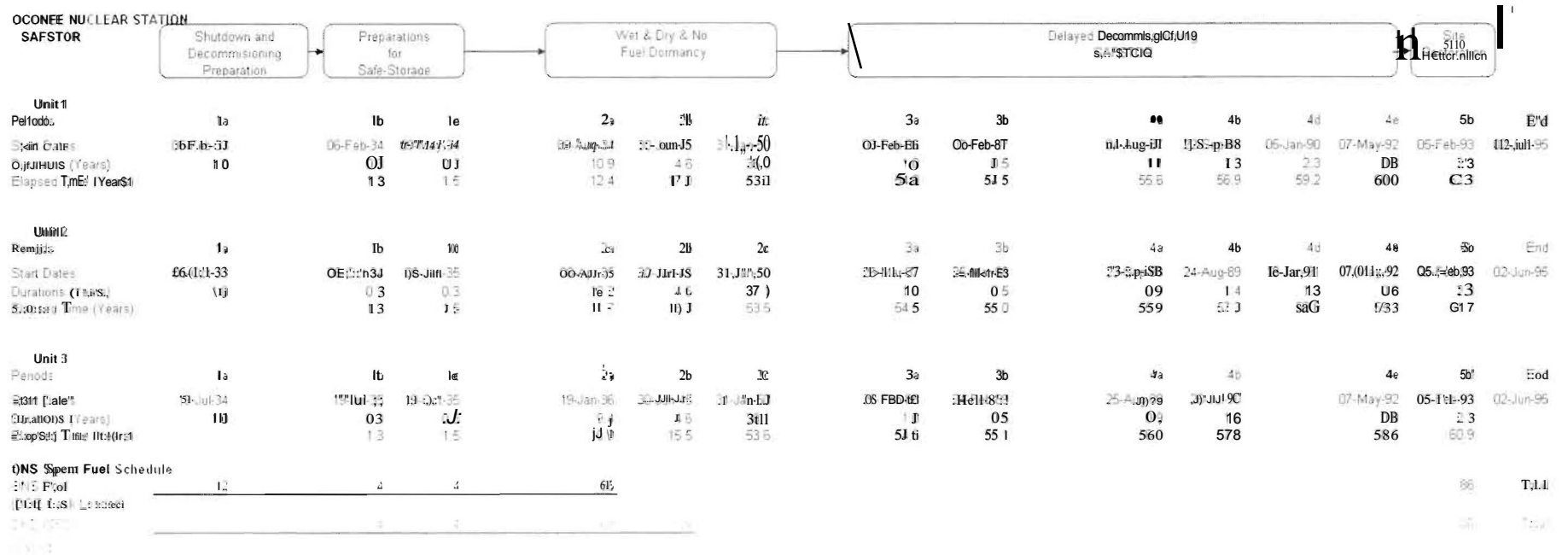


FIGURE 4.3  
DECOMMISSIONING TIMELINE  
SAFSTOR





## **5. RADIOACTIVE WASTES**

The objectives of the decommissioning process are the removal of all radioactive material from the site that would restrict its future use and the termination of the NRC license. This currently requires the remediation of all radioactive material at the site in excess of applicable legal limits. Under the Atomic Energy Act,<sup>[30]</sup> the NRC is responsible for protecting the public from sources of ionizing radiation. Title 10 of the Code of Federal Regulations delineates the production, utilization, and disposal of radioactive materials and processes. In particular, Part 71 defines radioactive material as it pertains to transportation and Part 61 specifies its disposition.

Most of the materials being transported for controlled burial are categorized as Low Specific Activity (LSA) or Surface Contaminated Object (SCO) materials containing Type A quantities, as defined in 49 CFR Parts 173-178. Shipping containers are required to be Industrial Packages (IP-1, IP-2 or IP-3, as defined in 10 CFR §173.411). For this study, commercially available steel containers are presumed to be used for the disposal of piping, small components, and concrete. Larger components can serve as their own containers, with proper closure of all openings, access ways, and penetrations.

The volumes of radioactive waste generated during the various decommissioning activities at the site are shown on a line-item basis in Appendices C and D, and summarized in Tables 5.1 through 5.6. The quantified waste volume summaries shown in these tables are consistent with Part 61 classifications. The volumes are calculated based on the exterior dimensions for containerized material and on the displaced volume of components serving as their own waste containers.

The reactor vessel and internals are categorized as large quantity shipments and, accordingly, will be shipped in reusable, shielded truck casks with disposable liners. In calculating disposal costs, the burial fees are applied against the liner volume, as well as the special handling requirements of the payload. Packaging efficiencies are lower for the highly activated materials (greater than Type A quantity waste), where high concentrations of gamma-emitting radionuclides limit the capacity of the shipping canisters.

No process system containing/handling radioactive substances at shutdown is presumed to meet material release criteria by decay alone (i.e., systems radioactive at shutdown will still be radioactive over the time period during which the decommissioning is accomplished, due to the presence of long-lived radionuclides). While the dose rates decrease with time, radionuclides such as <sup>137</sup>Cs will still control the disposition requirements.

The waste material produced in the decontamination and dismantling of the nuclear plants is primarily generated during Period 2 of DECON and Period 4 of SAFSTOR. Material that is considered potentially contaminated when removed from the radiological controlled area is sent to processing facilities in Tennessee for conditioning and disposal. Heavily contaminated components and activated materials are routed for controlled disposal. The disposal volumes reported in the tables reflect the savings resulting from reprocessing and recycling.

For purposes of constructing the estimates, the cost for disposal at the EnergySolutions' and Barnwell facilities were used as a proxy for future disposal facilities. Separate rates were used for containerized waste and large components, including the steam generators and reactor coolant pump motors. Demolition debris including miscellaneous steel, scaffolding, and concrete was disposed of at a bulk rate. The decommissioning waste stream also included resins and dry active waste.

Since EnergySolutions is not currently able to receive the more highly radioactive components generated in the decontamination and dismantling of the reactor, disposal costs for the Class B and C material were based upon the rate schedule for the Barnwell facility. Additional surcharges were included for activity, dose rate, and/or handling added as appropriate for the particular package.

TABLE 5.1  
UNIT 1 DECON ALTERNATIVE  
DECOMMISSIONING WASTE SUMMARY

Waste	Cost Basis	Class <sup>[1]</sup>	Waste Volume (cubic feet)	Mass (pounds)
Low-Level Radioactive Waste (near-surface disposal)	EnergySolutions	A	88,941	4,730,858
	Barnwell	A	37,855	4,701,775
	Barnwell	B	3,887	490,800
	Barnwell	C	517	61,505
Greater than Class C (geologic repository)	Spent Fuel Equivalent	GTCC	440	79,646
Processed/Conditioned (off-site recycling center)	Recycling Vendors	A	179,283	7,550,166
Total <sup>[2]</sup>			310,922	17,614,750

<sup>[1]</sup> Waste is classified according to the requirements as delineated in Title 10 CFR, Part 61.55

<sup>[2]</sup> Columns may not add due to rounding.

TABLE 5.2  
UNIT 2 DECON ALTERNATIVE  
DECOMMISSIONING WASTE SUMMARY

Waste	Cost Basis	Class <sup>(1)</sup>	Waste Volume (cubic feet)	Mass (pounds)
Low-Level Radioactive Waste (near-surface disposal)	EnergySolutions	A	98,675	5,417,984
	Barnwell	A	39,055	4,808,629
	Barnwell	B	8,887	490,800
	Barnwell	C	517	61,505
Greater than Class C (geologic repository)	Spent Fuel Equivalent	GTCC	440	79,646
Processed/Conditioned (off-site recycling center)	Recycling Vendors	A	185,124	7,803,156
Total <sup>(2)</sup>			328,117	18,461,720

<sup>(1)</sup> Waste is classified according to the requirements as delineated in Title 10 CFR, Part 61.55

<sup>(2)</sup> Columns may not add due to rounding.



**TABLE 5.3**  
**UNIT 3 DECON ALTERNATIVE**  
**DECOMMISSIONING WASTE SUMMARY**

Waste	Cost Basis	Class <sup>[1]</sup>	Waste Volume (cubic feet)	Mass (pounds)
Low-Level Radioactive Waste (near-surface disposal)	EnergySolutions	A	130,961	8,826,751
	Barnwell	A	41,576	5,044,048
	Barnwell	B	3,887	490,800
	Barnwell	C	517	61,505
Greater than Class C (geologic repository)	Spent Fuel Equivalent	GTCC	440	79,646
Processed/Conditioned (off-site recycling center)	Recycling Vendors	A	297,359	12,348,600
Total <sup>[2]</sup>			474,739	26,851,348

<sup>[1]</sup> Waste is classified according to the requirements as delineated in Title 10 CFR, Part 61.55

<sup>[2]</sup> Columns may not add due to rounding.

**TABLE 5.4**  
**UNIT 1 SAFSTOR ALTERNATIVE**  
**DECOMMISSIONING WASTE SUMMARY**

Waste	Cost Basis	Class <sup>[1]</sup>	Waste Volume (cubic feet)	Mass (pounds)
Low-Level Radioactive Waste (near-surface disposal)	EnergySolutions	A	89,211	3,610,052
	Barnwell	A	37,693	4,673,685
	Barnwell	B	3,325	358,740
	Barnwell	C	517	61,505
Greater than Class C (geologic repository)	Spent Fuel Equivalent	GTCC	440	79,646
Processed/Conditioned (off-site recycling center)	Recycling Vendors	A	200,736	8,470,709
Total <sup>[2]</sup>			331,921	17,264,337

<sup>[1]</sup> Waste is classified according to the requirements as delineated in Title 10 CFR, Part 61.55

<sup>[2]</sup> Columns may not add due to rounding.

**TABLE 5.5**  
**UNIT 2 SAFSTOR ALTERNATIVE**  
**DECOMMISSIONING WASTE SUMMARY**

Waste	Cost Basis	Class <sup>[1]</sup>	Waste Volume (cubic feet)	Mass (pounds)
Low-Level Radioactive Waste (near-surface disposal)	EnergySolutions	A	96,878	4,153,283
	Barnwell	A	37,694	4,673,760
	Barnwell	B	3,325	358,740
	Barnwell	C	517	61,505
Greater than Class C (geologic repository)	Spent Fuel Equivalent	GTCC	440	79,646
Processed/Conditioned (off-site recycling center)	Recycling Vendors	A	210,076	8,847,125
Total <sup>[2]</sup>			348,929	18,174,059

<sup>[1]</sup> Waste is classified according to the requirements as delineated in Title 10 CFR, Part 61.55

<sup>[2]</sup> Columns may not add due to rounding.

**TABLE 5.6**  
**UNIT 3 SAFSTOR ALTERNATIVE**  
**DECOMMISSIONING WASTE SUMMARY**

Waste	Cost Basis	Class <sup>[1]</sup>	Waste Volume (cubic feet)	Mass (pounds)
Low-Level Radioactive Waste (near-surface disposal)	EnergySolutions	A	122,944	7,112,560
	Barnwell	A	37,977	4,690,728
	Barnwell	B	3,325	358,740
	Barnwell	C	517	61,505
Greater than Class C (geologic repository)	Spent Fuel Equivalent	GTCC	440	79,646
Processed/Conditioned (off-site recycling center)	Recycling Vendors	A	328,047	13,644,180
Total <sup>[2]</sup>			493,249	25,947,359

<sup>[1]</sup> Waste is classified according to the requirements as delineated in Title 10 CFR, Part 61.55

<sup>[2]</sup> Columns may not add due to rounding.



## 6. RESULTS

The analysis to estimate the costs to decommission Oconee relied upon the site-specific, technical information developed for a previous analysis prepared in 2003. While not an engineering study, the estimates provide Duke Energy with sufficient information to assess their financial obligations, as they pertain to the eventual decommissioning of the nuclear station.

The estimates described in this report are based on numerous fundamental assumptions, including regulatory requirements, project contingencies, low-level radioactive waste disposal practices, high-level radioactive waste management options, and site restoration requirements. The decommissioning scenarios assume continued operation of the station's spent fuel pools for a minimum of twelve years following the cessation of operations for continued cooling of the assemblies.

The cost projected to promptly decommission (DECON) Oconee is estimated to be \$1,571.6 million. The majority of this cost (approximately 79.2%) is associated with the physical decontamination and dismantling of the nuclear plant so that the operating license can be terminated. Another 14.7% is associated with the management, interim storage, and eventual transfer of the spent fuel. The remaining 6.1% is for the demolition of the designated structures and limited restoration of the site.

The cost projected for deferred decommissioning (SAFSTOR) is estimated to be \$1,777.5 million. The majority of this cost (approximately 81.9%) is associated with placing the plant in storage, ongoing caretaking of the plant during dormancy, and the eventual physical decontamination and dismantling of the nuclear plant so that the operating license can be terminated. Another 11.0% is associated with the management, interim storage, and eventual transfer of the spent fuel. The remaining 7.1% is for the demolition of the designated structures and limited restoration of the site.

The primary cost contributors, identified in Tables 6.1 thru 6.4, are either labor-related or associated with the management and disposition of the radioactive waste. Program management is the largest single contributor to the overall cost. The magnitude of the expense is a function of both the size of the organization required to manage the decommissioning, as well as the duration of the program. It is assumed, for purposes of this analysis, that Duke Energy will oversee the decommissioning program, acting as the DOC to manage the decommissioning labor force and the associated subcontractors. The size and composition of the management organization varies with the decommissioning phase and associated site activities. However, once the operating license is terminated, the staff is

substantially reduced for the conventional demolition and restoration of the site, and the long-term care of the spent fuel (for the DECON alternative).

As described in this report, the spent fuel pools will remain operational for a minimum of twelve years following the cessation of operations. The pools will be isolated and an independent spent fuel island created. This will allow decommissioning operations to proceed in and around the pool area. Over the twelve-year period, the spent fuel will be packaged into transportable canisters for loading into a DOE-provided transport cask. Spent fuel will also be in storage at the ISFSI (from operations). This inventory will be transferred to the DOE as the pools are emptied.

The cost for waste disposal includes only those costs associated with the controlled disposition of the low-level radioactive waste generated from decontamination and dismantling activities, including plant equipment and components, structural material, filters, resins and dry-active waste. As described in Section 5, disposition of the low-level radioactive material required controlled disposal is at the EnergySolutions' and Barnwell facilities. Highly activated components, requiring additional isolation from the environment (GTCC), are packaged for geologic disposal. The cost of geologic disposal is based upon a cost equivalent for spent fuel.

A significant portion of the metallic waste is designated for additional processing and treatment at an off-site facility. Processing reduces the volume of material requiring controlled disposal through such techniques and processes as survey and sorting, decontamination, and volume reduction. The material that cannot be unconditionally released is packaged for controlled disposal at one of the currently operating facilities. The cost identified in the summary tables for processing is all-inclusive, incorporating the ultimate disposition of the material.

Removal costs reflect the labor-intensive nature of the decommissioning process, as well as the management controls required to ensure a safe and successful program. Decontamination and packaging costs also have a large labor component that is based upon prevailing union wages. Non-radiological demolition is a natural extension of the decommissioning process. The methods employed in decontamination and dismantling are generally destructive and indiscriminate in inflicting collateral damage. With a work force mobilized to support decommissioning operations, non-radiological demolition can be an integrated activity and a logical expansion of the work being performed in the process of terminating the operating license. Prompt demolition reduces future liabilities and can be more cost effective than deferral, due to the deterioration of the facilities (and therefore the working conditions) with time.

The reported cost for transport includes the tariffs and surcharges associated with moving large components and/or overweight shielded casks overland, as well as the general expense, e.g., labor and fuel, of transporting material to the destinations identified in this report. For purposes of this analysis, material is primarily moved overland by truck.

Decontamination is used to reduce the plant's radiation fields and minimize worker exposure. Slightly contaminated material or material located within a contaminated area is sent to an off-site processing center, i.e., this analysis does not assume that contaminated plant components and equipment can be decontaminated for uncontrolled release in-situ. Centralized processing centers have proven to be a more economical means of handling the large volumes of material produced in the dismantling of a nuclear plant.

License termination survey costs are associated with the labor intensive and complex activity of verifying that contamination has been removed from the site to the levels specified by the regulating agency. This process involves a systematic survey of all remaining plant surface areas and surrounding environs, sampling, isotopic analysis, and documentation of the findings. The status of any plant components and materials not removed in the decommissioning process will also require confirmation and will add to the expense of surveying the facilities alone.

The remaining costs include allocations for heavy equipment and temporary services, as well as for other expenses such as regulatory fees and the premiums for nuclear insurance. While site operating costs are greatly reduced following the final cessation of plant operations, certain administrative functions do need to be maintained either at a basic functional or regulatory level.



**TABLE 6.1**  
**UNIT 1 DECON ALTERNATIVE**  
**DECOMMISSIONING COST ELEMENTS**  
(thousands of 2008 dollars)

Cost Element	Total	Percentage
Decontamination	10,080	2.0
Removal	73,211	14.9
Packaging	12,144	2.5
Transportation	6,129	1.2
Waste Disposal	86,097	17.5
Off-site Waste Processing	19,449	3.9
Program Management <sup>[1]</sup>	191,212	38.8
Utility Site Indirect	17,743	3.6
Spent Fuel Pool Isolation	5,409	1.1
Spent Fuel Management <sup>[2]</sup>	20,790	4.2
Insurance and Regulatory Fees	12,660	2.6
Energy	10,654	2.2
Characterization and Licensing Surveys	12,827	2.6
Property Taxes	7,550	1.5
Miscellaneous Equipment	6,503	1.3
Total <sup>[3]</sup>	492,457	100

Cost Element	Total	Percentage
License Termination	398,442	80.9
Spent Fuel Management	71,528	14.5
Site Restoration	22,487	4.6
Total <sup>[3]</sup>	492,457	100

<sup>[1]</sup> Includes engineering and security costs

<sup>[2]</sup> Excludes program management costs (staffing) but includes costs for spent fuel loading/transfer costs/spent fuel pool O&M and EP fees

<sup>[3]</sup> Columns may not add due to rounding



**TABLE 6.2**  
**UNIT 2 DECON ALTERNATIVE**  
**DECOMMISSIONING COST ELEMENTS**  
(thousands of 2008 dollars)

Cost Element	Total	Percentage
Decontamination	12,148	2.6
Removal	75,276	16.1
Packaging	12,428	2.7
Transportation	6,642	1.4
Waste Disposal	88,968	19.0
Off-site Waste Processing	20,101	4.3
Program Management <sup>[1]</sup>	166,894	35.7
Utility Site Indirect	15,826	3.4
Spent Fuel Pool Isolation	5,409	1.2
Spent Fuel Management <sup>[2]</sup>	19,117	4.1
Insurance and Regulatory Fees	10,605	2.3
Energy	10,104	2.2
Characterization and Licensing Surveys	10,550	2.3
Property Taxes	6,539	1.4
Miscellaneous Equipment	6,438	1.4
Total <sup>[3]</sup>	467,045	100

Cost Element	Total	Percentage
License Termination	377,426	80.8
Spent Fuel Management	67,591	14.5
Site Restoration	22,027	4.7
Total <sup>[3]</sup>	467,045	100

<sup>[1]</sup> Includes engineering and security costs

<sup>[2]</sup> Excludes program management costs (staffing) but includes costs for spent fuel loading/transfer costs/spent fuel pool O&M and EP fees

<sup>[3]</sup> Columns may not add due to rounding

**TABLE 6.3**  
**UNIT 3 DECON ALTERNATIVE**  
**DECOMMISSIONING COST ELEMENTS**  
(thousands of 2008 dollars)

Cost Element	Total	Percentage
Decontamination	17,119	2.8
Removal	118,973	19.4
Packaging	13,244	2.2
Transportation	8,194	1.3
Waste Disposal	95,945	15.7
Off-site Waste Processing	31,808	5.2
Program Management <sup>[1]</sup>	229,584	37.5
Utility Site Indirect	19,022	3.1
Spent Fuel Pool Isolation	7,212	1.2
Spent Fuel Management <sup>[2]</sup>	22,382	3.7
Insurance and Regulatory Fees	10,601	1.7
Energy	10,086	1.6
Characterization and Licensing Surveys	12,812	2.1
Property Taxes	6,862	1.1
Miscellaneous Equipment	6,441	1.1
Miscellaneous Site Services	1,811	0.3
Total <sup>[3]</sup>	612,096	100.0

Cost Element	Total	Percentage
License Termination	468,948	76.6
Spent Fuel Management	92,545	15.1
Site Restoration	50,603	8.3
Total <sup>[3]</sup>	612,096	100.0

<sup>[1]</sup> Includes engineering and security costs

<sup>[2]</sup> Excludes program management costs (staffing) but includes costs for spent fuel loading/transfer costs/spent fuel pool O&M and EP fees

<sup>[3]</sup> Columns may not add due to rounding

**TABLE 6.4**  
**UNIT 1 SAFSTOR ALTERNATIVE**  
**DECOMMISSIONING COST ELEMENTS**  
(thousands of 2008 dollars)

Cost Element	Total	Percentage
Decontamination	9,338	1.6
Removal	72,536	12.2
Packaging	9,020	1.5
Transportation	5,106	0.9
Waste Disposal	69,540	11.7
Off-site Waste Processing	21,821	3.7
Program Management <sup>[1]</sup>	268,845	45.1
Utility Site Indirect	23,160	3.9
Spent Fuel Pool Isolation	5,409	0.9
Spent Fuel Management <sup>[2]</sup>	20,682	3.5
Insurance and Regulatory Fees	34,210	5.7
Energy	17,770	3.0
Characterization and Licensing Surveys	14,274	2.4
Property Taxes	7,880	1.3
Miscellaneous Equipment	16,083	2.7
Total <sup>[3]</sup>	595,675	100

Cost Element	Total	Percentage
License Termination	500,989	84.1
Spent Fuel Management	64,675	10.9
Site Restoration	30,011	5.0
Total <sup>[3]</sup>	595,675	100

<sup>[1]</sup> Includes engineering and security costs

<sup>[2]</sup> Excludes program management costs (staffing) but includes costs for spent fuel loading/transfer costs/spent fuel pool O&M and EP fees

<sup>[3]</sup> Columns may not add due to rounding

**TABLE 6.5**  
**UNIT 2 SAFSTOR ALTERNATIVE**  
**DECOMMISSIONING COST ELEMENTS**  
(thousands of 2008 dollars)

Cost Element	Total	Percentage
Decontamination	9,273	1.8
Removal	74,452	14.1
Packaging	9,187	1.7
Transportation	5,327	1.0
Waste Disposal	71,445	13.5
Off-site Waste Processing	22,790	4.3
Program Management <sup>[1]</sup>	208,870	39.6
Utility Site Indirect	17,810	3.4
Spent Fuel Pool Isolation	5,409	1.0
Spent Fuel Management <sup>[2]</sup>	19,009	3.6
Insurance and Regulatory Fees	32,043	6.1
Energy	17,556	3.3
Characterization and Licensing Surveys	11,997	2.3
Property Taxes	6,870	1.3
Miscellaneous Equipment	16,035	3.0
Total <sup>[3]</sup>	528,074	100

Cost Element	Total	Percentage
License Termination	435,993	82.6
Spent Fuel Management	62,588	11.9
Site Restoration	29,492	5.6
Total <sup>[4]</sup>	528,074	100

<sup>[1]</sup> Includes engineering and security costs

<sup>[2]</sup> Excludes program management costs (staffing) but includes costs for spent fuel loading/transfer costs/spent fuel pool O&M and EP fees

<sup>[4]</sup> Columns may not add due to rounding



**TABLE 6.6**  
**UNIT 3 SAFSTOR ALTERNATIVE**  
**DECOMMISSIONING COST ELEMENTS**  
(thousands of 2008 dollars)

Cost Element	Total	Percentage
Decontamination	12,090	1.8
Removal	117,255	17.9
Packaging	9,742	1.5
Transportation	6,260	1.0
Waste Disposal	76,348	11.7
Off-site Waste Processing	35,145	5.4
Program Management <sup>[1]</sup>	255,960	39.2
Utility Site Indirect	20,652	3.2
Spent Fuel Pool Isolation	7,212	1.1
Spent Fuel Management <sup>[2]</sup>	21,316	3.3
Insurance and Regulatory Fees	32,146	4.9
Energy	17,892	2.7
Characterization and Licensing Surveys	14,259	2.2
Property Taxes	7,182	1.1
Miscellaneous Equipment	18,466	2.8
Miscellaneous Site Services	1,811	0.3
Total <sup>[3]</sup>	653,737	100.0

Cost Element	Total	Percentage
License Termination	518,504	79.3
Spent Fuel Management	68,473	10.5
Site Restoration	66,760	10.2
Total <sup>[3]</sup>	653,737	100.0

<sup>[1]</sup> Includes engineering and security costs

<sup>[2]</sup> Excludes program management costs (staffing) but includes costs for spent fuel loading/transfer costs/spent fuel pool O&M and EP fees

<sup>[3]</sup> Columns may not add due to rounding

## **7. REFERENCES**

1. "Decommissioning Cost Analysis for the Oconee Nuclear Station," Document No. D03-1478-004, Rev. 0, TLG Services, Inc., February 2004
2. U.S. Code of Federal Regulations, Title 10, Parts 30, 40, 50, 51, 70 and 72, "General Requirements for Decommissioning Nuclear Facilities," Nuclear Regulatory Commission, Federal Register Volume 53, Number 123 (p 24018 et seq.), June 27, 1988
3. U.S. Nuclear Regulatory Commission, Regulatory Guide 1.159, "Assuring the Availability of Funds for Decommissioning Nuclear Reactors," October 2003
4. U.S. Code of Federal Regulations, Title 10, Part 20, Subpart E, "Radiological Criteria for License Termination"
5. U.S. Code of Federal Regulations, Title 10, Parts 20 and 50, "Entombment Options for Power Reactors," Advanced Notice of Proposed Rulemaking, Federal Register Volume 66, Number 200, October 16, 2001
6. U.S. Code of Federal Regulations, Title 10, Parts 2, 50 and 51, "Decommissioning of Nuclear Power Reactors," Nuclear Regulatory Commission, Federal Register Volume 61 (p 39278 et seq.), July 29, 1996.
7. "Nuclear Waste Policy Act of 1982 and Amendments," U.S. Department of Energy's Office of Civilian Radioactive Management, 1982
8. "DOE Announces Yucca Mountain License Application Schedule", U.S. Department of Energy's Office of Public Affairs, Press Release July 19, 2006
9. U.S. Code of Federal Regulations, Title 10, Part 50, "Domestic Licensing of Production and Utilization Facilities," Subpart 54 (bb), "Conditions of Licenses"
10. "Low Level Radioactive Waste Policy Act," Public Law 96-573, 1980
11. "Low-Level Radioactive Waste Policy Amendments Act of 1985," Public Law 99-240, 1986
12. Waste is classified in accordance with U.S. Code of Federal Regulations, Title 10, Part 61.55

## **7. REFERENCES**

(continued)

13. U.S. Code of Federal Regulations, Title 10, Part 20, Subpart E, "Radiological Criteria for License Termination," Federal Register, Volume 62, Number 139 (p 39058 et seq.), July 21, 1997
14. "Establishment of Cleanup Levels for CERCLA Sites with Radioactive Contamination," EPA Memorandum OSWER No. 9200.4-18, August 22, 1997.
15. U.S. Code of Federal Regulations, Title 40, Part 141.16, "Maximum contaminant levels for beta particle and photon radioactivity from man-made radionuclides in community water systems"
16. "Memorandum of Understanding Between the Environmental Protection Agency and the Nuclear Regulatory Commission: Consultation and Finality on Decommissioning and Decontamination of Contaminated Sites," OSWER 9295.8-06a, October 9, 2002
17. "Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)," NUREG/CR-1575, Rev. 1, EPA 402-R-97-016, Rev. 1, August 2000
18. T.S. LaGuardia et al., "Guidelines for Producing Commercial Nuclear Power Plant Decommissioning Cost Estimates," AIF/NESP-036, May 1986
19. W.J. Manion and T.S. LaGuardia, "Decommissioning Handbook," U.S. Department of Energy, DOE/EV/10128-1, November 1980
20. "Building Construction Cost Data 2008," Robert Snow Means Company, Inc., Kingston, Massachusetts
21. Project and Cost Engineers' Handbook, Second Edition, p. 239, American Association of Cost Engineers, Marcel Dekker, Inc., New York, New York, 1984
22. Civilian Radioactive Waste Management System Waste Acceptance System Requirements Document, Revision 5" (DOE/RW-0351) issued May 31, 2007
23. U.S. Department of Transportation, Title 49 of the Code of Federal Regulations, "Transportation," Parts 173 through 178, 2007

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24. Tri-State Motor Transit Company, published tariffs, Interstate Commerce Commission (ICC), Docket No. MC-427719 Rules Tariff, March 2004, Radioactive Materials Tariff, February 2006
25. J.C. Evans et al., "Long-Lived Activation Products in Reactor Materials" NUREG/CR-3474, Pacific Northwest Laboratory for the Nuclear Regulatory Commission. August 1984
26. R.I. Smith, G.J. Konzek, W.E. Kennedy, Jr., "Technology, Safety and Costs of Decommissioning a Reference Pressurized Water Reactor Power Station," NUREG/CR-0130 and addenda, Pacific Northwest Laboratory for the Nuclear Regulatory Commission. June 1978
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28. "Financial Protection Requirements for Permanently Shutdown Nuclear Power Reactors," 10 CFR Parts 50 and 140, Federal Register Notice, Vol. 62, No. 210, October 30, 1997
29. "Microsoft Project Professional 2003," Microsoft Corporation, Redmond, WA.
30. "Atomic Energy Act of 1954," (68 Stat. 919)



APPENDIX A  
UNIT COST FACTOR DEVELOPMENT

**APPENDIX A**  
**UNIT COST FACTOR DEVELOPMENT**

Example: Unit Factor for Removal of Contaminated Heat Exchanger < 3,000 lbs.

**1. SCOPE**

Heat exchangers weighing < 3,000 lbs. will be removed in one piece using a crane or small hoist. They will be disconnected from the inlet and outlet piping. The heat exchanger will be sent to the waste processing area.

**2. CALCULATIONS**

Act ID	Activity Description	Activity Duration (minutes)	Critical Duration (minutes)*
a	Remove insulation	60	(b)
b	Mount pipe cutters	60	60
c	Install contamination controls	20	(b)
d	Disconnect inlet and outlet lines	60	60
e	Cap openings	20	(d)
f	Rig for removal	30	30
g	Unbolt from mounts	30	30
h	Remove contamination controls	15	15
i	Remove, wrap, send to waste processing area	<u>60</u>	<u>60</u>
	Totals (Activity/Critical)	355	255

Duration adjustment(s):

+ Respiratory protection adjustment (50% of critical duration) 128

+ Radiation/ALARA adjustment (37% of critical duration) 95

Adjusted work duration 478

+ Protective clothing adjustment (30% of adjusted duration) 143

Productive work duration 621

+ Work break adjustment (8.33 % of productive duration) 52

Total work duration (minutes) 673

**\*\*\* Total duration = 11.217 hr \*\*\***

\* alpha designators indicate activities that can be performed in parallel

APPENDIX A  
(continued)

3. LABOR REQUIRED

Crew	Number	Duration (hours)	Rate (\$/hr)	Cost
Laborers	3.00	11.217	\$**.**	\$***.**
Craftsmen	2.00	11.217	\$**.**	\$****.**
Foreman	1.00	11.217	\$**.**	\$***.**
General Foreman	0.25	11.217	\$**.**	\$***.**
Fire Watch	0.05	11.217	\$**.**	\$**.**
Health Physics Technician	1.00	11.217	\$**.**	<u>\$***.**</u>
Total Labor Cost				\$3,097.30

4. EQUIPMENT & CONSUMABLES COSTS

Equipment Costs	none
Consumables/Materials Costs	
-Blotting paper 50 @ \$0.55 sq ft <sup>(1)</sup>	\$27.50
-Plastic sheets/bags 50 @ \$0.17/sq ft <sup>(2)</sup>	\$8.50
-Gas torch consumables 1 @ \$9.94/hr x 1 hr <sup>(3)</sup>	<u>\$9.94</u>
Subtotal cost of equipment and materials	\$45.94
Overhead & profit on equipment and materials @ 16.00 %	<u>\$7.35</u>
Total costs, equipment & material	\$53.29

TOTAL COST:

<b>Removal of contaminated heat exchanger &lt;3000 pounds:</b>	<b>\$3,150.59</b>
Total labor cost:	\$3,097.30
Total equipment/material costs:	\$53.29
Total craft labor man-hours required per unit:	81.88

\*\* denotes business sensitive information

## 5. NOTES AND REFERENCES

- Work difficulty factors were developed in conjunction with the Atomic Industrial Forum's (now NEI) program to standardize nuclear decommissioning cost estimates and are delineated in Volume 1, Chapter 5 of the "Guidelines for Producing Commercial Nuclear Power Plant Decommissioning Cost Estimates," AIF/NESP-036, May 1986.
- References for equipment & consumables costs:
  1. McMaster-Carr, Item 7193T88, Spill Control
  2. R.S. Means (2008) Division 01 56, Section 13.60-0200, page 20
  3. R.S. Means (2008) Division 01 54 33, Section 40-6360, Reference-10
- Material and consumable costs were adjusted using the regional indices for Greenville, South Carolina.



## APPENDIX B

### UNIT COST FACTOR LISTING (DECON: Power Block Structures Only)

## APPENDIX B

### UNIT COST FACTOR LISTING (Power Block Structures Only)

Unit Cost Factor	Cost/Unit(\$)
Removal of clean instrument and sampling tubing, \$/linear foot	0.31
Removal of clean pipe 0.25 to 2 inches diameter, \$/linear foot	3.16
Removal of clean pipe >2 to 4 inches diameter, \$/linear foot	4.70
Removal of clean pipe >4 to 8 inches diameter, \$/linear foot	9.81
Removal of clean pipe >8 to 14 inches diameter, \$/linear foot	18.36
Removal of clean pipe >14 to 20 inches diameter, \$/linear foot	23.88
Removal of clean pipe >20 to 36 inches diameter, \$/linear foot	35.14
Removal of clean pipe >36 inches diameter, \$/linear foot	41.74
Removal of clean valve >2 to 4 inches	63.91
Removal of clean valve >4 to 8 inches	98.11
Removal of clean valve >8 to 14 inches	183.62
Removal of clean valve >14 to 20 inches	238.81
Removal of clean valve >20 to 36 inches	351.35
Removal of clean valve >36 inches	417.41
Removal of clean pipe hanger for small bore piping	20.87
Removal of clean pipe hanger for large bore piping	71.48
Removal of clean pump, <300 pound	165.57
Removal of clean pump, 300-1000 pound	475.00
Removal of clean pump, 1000-10,000 pound	1,851.75
Removal of clean pump, >10,000 pound	3,581.40
Removal of clean pump motor, 300-1000 pound	199.24
Removal of clean pump motor, 1000-10,000 pound	770.54
Removal of clean pump motor, >10,000 pound	1,733.71
Removal of clean heat exchanger <3000 pound	996.02
Removal of clean heat exchanger >3000 pound	2,507.43
Removal of clean feedwater heater/deaerator	7,056.68
Removal of clean moisture separator/reheater	14,492.15
Removal of clean tank, <300 gallons	213.00
Removal of clean tank, 300-3000 gallon	671.39
Removal of clean tank, >3000 gallons, \$/square foot surface area	5.83

## APPENDIX B

### UNIT COST FACTOR LISTING (Power Block Structures Only)

Unit Cost Factor	Cost/Unit(\$)
Removal of clean electrical equipment, <300 pound	90.08
Removal of clean electrical equipment, 300-1000 pound	324.39
Removal of clean electrical equipment, 1000-10,000 pound	648.77
Removal of clean electrical equipment, >10,000 pound	1,564.83
Removal of clean electrical transformer < 30 tons	1,086.75
Removal of clean electrical transformer > 30 tons	3,129.67
Removal of clean standby diesel generator, <100 kW	1,110.04
Removal of clean standby diesel generator, 100 kW to 1 MW	2,477.65
Removal of clean standby diesel generator, >1 MW	5,129.25
Removal of clean electrical cable tray, \$/linear foot	8.44
Removal of clean electrical conduit, \$/linear foot	3.69
Removal of clean mechanical equipment, <300 pound	90.08
Removal of clean mechanical equipment, 300-1000 pound	324.39
Removal of clean mechanical equipment, 1000-10,000 pound	648.77
Removal of clean mechanical equipment, >10,000 pound	1,564.83
Removal of clean HVAC equipment, <300 pound	90.08
Removal of clean HVAC equipment, 300-1000 pound	324.39
Removal of clean HVAC equipment, 1000-10,000 pound	648.77
Removal of clean HVAC equipment, >10,000 pound	1,564.83
Removal of clean HVAC ductwork, \$/pound	0.33
Removal of contaminated instrument and sampling tubing, \$/linear foot	1.11
Removal of contaminated pipe 0.25 to 2 inches diameter, \$/linear foot	15.17
Removal of contaminated pipe >2 to 4 inches diameter, \$/linear foot	25.84
Removal of contaminated pipe >4 to 8 inches diameter, \$/linear foot	43.13
Removal of contaminated pipe >8 to 14 inches diameter, \$/linear foot	82.20
Removal of contaminated pipe >14 to 20 inches diameter, \$/linear foot	98.49
Removal of contaminated pipe >20 to 36 inches diameter, \$/linear foot	135.79
Removal of contaminated pipe >36 inches diameter, \$/linear foot	160.25
Removal of contaminated valve >2 to 4 inches	326.62
Removal of contaminated valve >4 to 8 inches	393.86

## **APPENDIX B**

### **UNIT COST FACTOR LISTING (Power Block Structures Only)**

<b>Unit Cost Factor</b>	<b>Cost/Unit(\$)</b>
Removal of contaminated valve >8 to 14 inches	780.29
Removal of contaminated valve >14 to 20 inches	989.97
Removal of contaminated valve >20 to 36 inches	1,316.18
Removal of contaminated valve >36 inches	1,560.76
Removal of contaminated pipe hanger for small bore piping	78.62
Removal of contaminated pipe hanger for large bore piping	244.64
Removal of contaminated pump, <300 pound	702.89
Removal of contaminated pump, 300-1000 pound	1,641.37
Removal of contaminated pump, 1000-10,000 pound	5,143.20
Removal of contaminated pump, >10,000 pound	12,524.89
Removal of contaminated pump motor, 300-1000 pound	705.79
Removal of contaminated pump motor, 1000-10,000 pound	2,103.41
Removal of contaminated pump motor, >10,000 pound	4,722.48
Removal of contaminated heat exchanger <3000 pound	3,150.59
Removal of contaminated heat exchanger >3000 pound	9,151.21
Removal of contaminated tank, >300 gallons, \$/square foot	22.91
Removal of contaminated electrical equipment, <300 pound	540.27
Removal of contaminated electrical equipment, 300-1000 pound	1,322.90
Removal of contaminated electrical equipment, 1000-10,000 pound	2,547.19
Removal of contaminated electrical equipment, >10,000 pound	5,006.30
Removal of contaminated electrical cable tray, \$/linear foot	26.06
Removal of contaminated electrical conduit, \$/linear foot	12.21
Removal of contaminated mechanical equipment, <300 pound	601.38
Removal of contaminated mechanical equipment, 300-1000 pound	1,462.15
Removal of contaminated mechanical equipment, 1000-10,000 pound	2,810.75
Removal of contaminated mechanical equipment, >10,000 pound	5,006.30
Removal of contaminated HVAC equipment, <300 pound	601.38
Removal of contaminated HVAC equipment, 300-1000 pound	1,462.15
Removal of contaminated HVAC equipment, 1000-10,000 pound	2,810.75



## APPENDIX B

### UNIT COST FACTOR LISTING (Power Block Structures Only)

Unit Cost Factor	Cost/Unit(\$)
Removal of contaminated HVAC equipment, >10,000 pound	5,006.30
Removal of contaminated HVAC ductwork, \$/pound	1.66
Removal/plasma arc cut of contaminated thin metal components, \$/linear in.	2.84
Additional decontamination of surface by washing, \$/square foot	5.69
Additional decontamination of surfaces by hydrolasing, \$/square foot	28.17
Decontamination rig hook up and flush, \$/ 250 foot length	5,093.89
Chemical flush of components/systems, \$/gallon	15.66
Removal of clean standard reinforced concrete, \$/cubic yard	110.23
Removal of grade slab concrete, \$/cubic yard	140.47
Removal of clean concrete floors, \$/cubic yard	294.41
Removal of sections of clean concrete floors, \$/cubic yard	852.12
Removal of clean heavily rein concrete w/#9 rebar, \$/cubic yard	202.12
Removal of contaminated heavily rein concrete w/#9 rebar, \$/cubic yard	1,689.94
Removal of clean heavily rein concrete w/#18 rebar, \$/cubic yard	255.63
Removal of contaminated heavily rein concrete w/#18 rebar, \$/cubic yard	2,235.92
Removal heavily rein concrete w/#18 rebar & steel embedments, \$/cubic yard	376.88
Removal of below-grade suspended floors, \$/cubic yard	294.41
Removal of clean monolithic concrete structures, \$/cubic yard	711.34
Removal of contaminated monolithic concrete structures, \$/cubic yard	1,685.68
Removal of clean foundation concrete, \$/cubic yard	560.16
Removal of contaminated foundation concrete, \$/cubic yard	1,570.81
Explosive demolition of bulk concrete, \$/cubic yard	25.51
Removal of clean hollow masonry block wall, \$/cubic yard	72.17
Removal of contaminated hollow masonry block wall, \$/cubic yard	261.02
Removal of clean solid masonry block wall, \$/cubic yard	72.17
Removal of contaminated solid masonry block wall, \$/cubic yard	261.02
Backfill of below-grade voids, \$/cubic yard	16.27
Removal of subterranean tunnels/voids, \$/linear foot	86.48
Placement of concrete for below-grade voids, \$/cubic yard	138.80
Excavation of clean material, \$/cubic yard	2.66

## APPENDIX B

### UNIT COST FACTOR LISTING (Power Block Structures Only)

Unit Cost Factor	Cost/Unit(\$)
Excavation of contaminated material, \$/cubic yard	36.01
Removal of clean concrete rubble, \$/cubic yard	21.07
Removal of contaminated concrete rubble, \$/cubic yard	22.16
Removal of building by volume, \$/cubic foot	0.26
Removal of clean building metal siding, \$/square foot	0.76
Removal of contaminated building metal siding, \$/square foot	3.04
Removal of standard asphalt roofing, \$/square foot	1.45
Removal of transite panels, \$/square foot	1.68
Scarifying contaminated concrete surfaces (drill & spall), \$/square foot	11.93
Scabbling contaminated concrete floors, \$/square foot	6.34
Scabbling contaminated concrete walls, \$/square foot	15.97
Scabbling contaminated ceilings, \$/square foot	54.04
Scabbling structural steel, \$/square foot	5.50
Removal of clean overhead crane/monorail < 10 ton capacity	472.58
Removal of contaminated overhead crane/monorail < 10 ton capacity	1,418.62
Removal of clean overhead crane/monorail >10-50 ton capacity	1,134.20
Removal of contaminated overhead crane/monorail >10-50 ton capacity	3,404.07
Removal of polar crane > 50 ton capacity	4,785.69
Removal of gantry crane > 50 ton capacity	19,560.45
Removal of structural steel, \$/pound	0.17
Removal of clean steel floor grating, \$/square foot	3.59
Removal of contaminated steel floor grating, \$/square foot	10.80
Removal of clean free standing steel liner, \$/square foot	8.74
Removal of contaminated free standing steel liner, \$/square foot	26.73
Removal of clean concrete-anchored steel liner, \$/square foot	4.37
Removal of contaminated concrete-anchored steel liner, \$/square foot	31.16
Placement of scaffolding in clean areas, \$/square foot	14.81
Placement of scaffolding in contaminated areas, \$/square foot	22.55
Landscaping with topsoil, \$/acre	23,625.46
Cost of CPC B-88 LSA box & preparation for use	1,749.60

**APPENDIX B**

**UNIT COST FACTOR LISTING  
(Power Block Structures Only)**

<b>Unit Cost Factor</b>	<b>Cost/Unit(\$)</b>
Cost of CPC B-25 LSA box & preparation for use	1,535.73
Cost of CPC B-12V 12 gauge LSA box & preparation for use	1,502.82
Cost of CPC B-144 LSA box & preparation for use	9,437.03
Cost of LSA drum & preparation for use	125.77
Cost of cask liner for CNSI 8 120A cask (resins)	7,082.55
Decontamination of surfaces with vacuuming, \$/square foot	0.49

**APPENDIX C**  
**DETAILED COST ANALYSIS**  
**DECON**

<b>Table</b>	<b>Page</b>
C-1 Oconee Nuclear Station, Unit 1.....	2
C-2 Oconee Nuclear Station, Unit 2.....	11
C-3 Oconee Nuclear Station, Unit 3.....	20



Table C-1  
Oconee Nuclear Station - Unit 1  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
PERIOD 1a - Shutdown through Transition																					
Period 1a Direct Decommissioning Activities																					
1a.1.1	Prepare preliminary decommissioning cost	-	-	-	-	-	-	65	13	101	101	-	-	-	-	-	-	-	-	-	1,300
1a.1.2	Notification of Cessation of Operations	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
1a.1.3	Remove fuel & source material	-	-	-	-	-	-	-	-	n/a	-	-	-	-	-	-	-	-	-	-	-
1a.1.4	Notification of Permanent Defueling	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
1a.1.5	Deactivate plant systems & process waste	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
1a.1.6	Prepare and submit PSDAR	-	-	-	-	-	-	135	20	156	156	-	-	-	-	-	-	-	-	-	2,000
1a.1.7	Review plant dwgs & specs	-	-	-	-	-	-	311	47	358	358	-	-	-	-	-	-	-	-	-	4,600
1a.1.8	Perform detailed rad survey	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
1a.1.9	Estimate by-product inventory	-	-	-	-	-	-	68	10	78	78	-	-	-	-	-	-	-	-	-	1,000
1a.1.10	End product description	-	-	-	-	-	-	68	10	78	78	-	-	-	-	-	-	-	-	-	1,000
1a.1.11	Detailed by-product inventory	-	-	-	-	-	-	88	13	101	101	-	-	-	-	-	-	-	-	-	1,300
1a.1.12	Define major work sequence	-	-	-	-	-	-	507	78	583	583	-	-	-	-	-	-	-	-	-	7,500
1a.1.13	Perform SER and EA	-	-	-	-	-	-	210	31	241	241	-	-	-	-	-	-	-	-	-	3,100
1a.1.14	Perform Site-Specific Cost Study	-	-	-	-	-	-	338	51	389	389	-	-	-	-	-	-	-	-	-	5,000
1a.1.15	Prepare/submit License Termination Plan	-	-	-	-	-	-	277	42	319	319	-	-	-	-	-	-	-	-	-	4,096
1a.1.16	Receive NRC approval of termination plan	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
Activity Specifications																					
1a.1.17.1	Plant & temporary facilities	-	-	-	-	-	-	333	50	383	344	-	38	-	-	-	-	-	-	-	4,920
1a.1.17.2	Plant systems	-	-	-	-	-	-	282	42	324	292	-	32	-	-	-	-	-	-	-	4,167
1a.1.17.3	USSS Decontamination Flush	-	-	-	-	-	-	34	5	39	39	-	-	-	-	-	-	-	-	-	500
1a.1.17.4	Reactor internals	-	-	-	-	-	-	480	72	552	552	-	-	-	-	-	-	-	-	-	7,100
1a.1.17.5	Reactor vessel	-	-	-	-	-	-	440	66	506	506	-	-	-	-	-	-	-	-	-	6,500
1a.1.17.6	Biological shield	-	-	-	-	-	-	34	5	39	39	-	-	-	-	-	-	-	-	-	500
1a.1.17.7	Steam generators	-	-	-	-	-	-	211	32	243	243	-	-	-	-	-	-	-	-	-	3,120
1a.1.17.8	Reinforced concrete	-	-	-	-	-	-	108	16	124	62	-	62	-	-	-	-	-	-	-	1,600
1a.1.17.9	Main Turbine	-	-	-	-	-	-	27	4	31	-	-	31	-	-	-	-	-	-	-	400
1a.1.17.10	Main Condensers	-	-	-	-	-	-	27	4	31	-	-	31	-	-	-	-	-	-	-	400
1a.1.17.11	Plant structures & buildings	-	-	-	-	-	-	211	32	243	121	-	121	-	-	-	-	-	-	-	3,120
1a.1.17.12	Waste management	-	-	-	-	-	-	311	47	358	358	-	-	-	-	-	-	-	-	-	4,600
1a.1.17.13	Facility & site closeout	-	-	-	-	-	-	61	9	70	35	-	35	-	-	-	-	-	-	-	900
1a.1.17	Total	-	-	-	-	-	-	2,558	384	2,942	2,591	-	351	-	-	-	-	-	-	-	37,827
Planning & Site Preparations																					
1a.1.18	Prepare dismantling sequence	-	-	-	-	-	-	182	24	187	187	-	-	-	-	-	-	-	-	-	2,400
1a.1.19	Plant prep. & temp. svcs	-	-	-	-	-	-	2,700	405	3,105	3,105	-	-	-	-	-	-	-	-	-	-
1a.1.20	Design water clean-up system	-	-	-	-	-	-	95	14	109	109	-	-	-	-	-	-	-	-	-	1,400
1a.1.21	Rigging/Conf. Cntrl Envlpooling/etc	-	-	-	-	-	-	2,100	315	2,415	2,415	-	-	-	-	-	-	-	-	-	-
1a.1.22	Procure casks/liners & containers	-	-	-	-	-	-	83	12	96	96	-	-	-	-	-	-	-	-	-	1,230
1a.1	Subtotal Period 1a Activity Costs	-	-	-	-	-	-	8,788	1,468	11,256	10,905	-	351	-	-	-	-	-	-	-	73,753
Period 1a Additional Costs																					
1a.2.1	Asbestos Remediation	-	2,759	1	283	-	2,164	-	1,273	6,481	6,481	-	-	-	25,455	-	-	-	330,915	35,451	-
1a.2	Subtotal Period 1a Additional Costs	-	2,759	1	283	-	2,164	-	1,273	6,481	6,481	-	-	-	25,455	-	-	-	330,915	35,451	-
Period 1a Collateral Costs																					
1a.3.1	Small tool allowance	-	42	-	-	-	-	-	8	48	48	-	-	-	-	-	-	-	-	-	-
1a.3.2	Spent Fuel Capital and Transfer	-	-	-	-	-	-	1,250	187	1,437	-	1,437	-	-	-	-	-	-	-	-	-
1a.3	Subtotal Period 1a Collateral Costs	-	42	-	-	-	-	1,250	194	1,485	48	1,485	-	-	-	-	-	-	-	-	-
Period 1a Period-Dependent Costs																					
1a.4.1	Initial/Pre-Work	-	-	-	-	-	-	179	78	257	257	-	-	-	-	-	-	-	-	-	-
1a.4.2	Post-Work	-	-	-	-	-	-	1,331	139	1,470	1,503	-	-	-	-	-	-	-	-	-	-

**TLG Services, Inc.**

Table C-1  
Oconee Nuclear Station - Unit 1  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt. Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 1b Period-Dependent Costs																					
1b.4.1	Decon supplies	27	-	-	-	-	-	-	7	34	34	-	-	-	-	-	-	-	-	-	-
1b.4.2	Insurance	-	-	-	-	-	-	393	39	432	432	-	-	-	-	-	-	-	-	-	-
1b.4.3	Property taxes	-	-	-	-	-	-	702	70	773	773	-	-	-	-	-	-	-	-	-	-
1b.4.4	Health physics supplies	-	229	-	-	-	-	-	65	324	324	-	-	-	-	-	-	-	-	-	-
1b.4.5	Heavy equipment rental	-	212	-	-	-	-	-	35	267	267	-	-	-	-	-	-	-	-	-	-
1b.4.6	Disposal of DAW generated	-	-	8	5	-	15	-	5	31	31	-	-	-	359	-	-	-	7,173	13	-
1b.4.7	Plant energy budget	-	-	-	-	-	-	1,342	261	1,543	1,543	-	-	-	-	-	-	-	-	-	-
1b.4.8	NRC Fees	-	-	-	-	-	-	358	36	393	393	-	-	-	-	-	-	-	-	-	-
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	142	14	157	-	-	-	-	-	-	-	-	-	-	-
1b.4.10	FEMA Fees	-	-	-	-	-	-	64	10	73	73	-	-	-	-	-	-	-	-	-	-
1b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	278	57	435	-	435	-	-	-	-	-	-	-	-	-
1b.4.12	Indirect Overhead	-	-	-	-	-	-	1,645	247	1,892	1,892	-	-	-	-	-	-	-	-	-	-
1b.4.13	Security Staff Cost	-	-	-	-	-	-	803	90	893	893	-	-	-	-	-	-	-	-	-	23,859
1b.4.14	Utility Staff Cost	-	-	-	-	-	-	15,430	2,314	17,744	17,744	-	-	-	-	-	-	-	-	-	214,857
1b.4	Subtotal Period 1b Period-Dependent Costs	27	491	8	5	-	15	21,095	3,190	24,791	24,200	591	-	-	359	-	-	-	7,173	13	298,516
1b.0	TOTAL PERIOD 1b COST	2,855	1,492	62	176	-	2,388	31,111	6,527	44,612	43,333	793	486	-	547	762	-	-	102,998	20,365	339,611
PERIOD 1 TOTALS		2,855	5,569	14	498	-	4,578	75,335	14,514	103,193	98,952	3,403	838	-	26,621	762	-	-	446,291	55,838	896,503
PERIOD 2a - Large Component Removal																					
Period 2a Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
2a.1.1.1	Reactor Coolant Piping	156	150	16	35	-	254	-	188	798	798	-	-	-	965	-	-	-	116,739	7,013	-
2a.1.1.2	Pressurizer Relief Tank	14	12	3	7	-	45	-	23	104	104	-	-	-	188	-	-	-	20,849	612	-
2a.1.1.3	Reactor Coolant Pumps & Motors	96	69	40	277	138	1,829	-	614	3,163	3,163	-	-	374	7,504	-	-	-	796,624	4,216	-
2a.1.1.4	Pressurizer	33	45	324	-	-	1,177	-	355	1,935	1,935	-	-	-	1,847	-	-	-	107,604	2,361	-
2a.1.1.5	Steam Generators	140	1,917	1,164	761	-	11,288	-	3,581	18,781	18,781	-	-	-	12,866	-	-	-	1,810,770	11,616	1,167
2a.1.1.6	Retired Steam Generator Units	-	-	685	760	-	11,288	-	3,004	15,737	15,737	-	-	-	12,866	-	-	-	1,810,770	5,400	750
2a.1.1.7	CRDMs/ICIs/Service Structure Removal	132	73	237	84	-	169	-	163	859	859	-	-	-	3,518	-	-	-	77,700	4,476	-
2a.1.1.8	Reactor Vessel Internals	89	2,160	4,528	510	-	8,854	210	7,233	23,285	23,285	-	-	-	626	1,122	517	-	287,160	26,133	1,177
2a.1.1.9	Reactor Vessel	63	4,233	1,368	248	-	9,690	210	8,490	24,306	24,306	-	-	-	5,862	2,003	-	-	956,040	26,133	1,177
2a.1.1	Totals	725	9,560	8,365	2,703	138	44,401	420	23,649	88,967	88,967	-	-	374	47,241	3,125	517	-	5,984,257	87,961	4,271
Removal of Major Equipment																					
2a.1.2	Main Turbine/Generator	-	308	259	78	727	394	-	322	2,088	2,088	-	-	3,819	2,127	-	-	-	515,469	7,674	-
2a.1.3	Main Condensers	-	919	113	54	508	291	-	398	2,283	2,283	-	-	5,044	1,487	-	-	-	360,419	23,585	-
Cascading Costs from Clean Building Demolition																					
2a.1.4.1	Reactor Building	-	710	-	-	-	-	-	106	816	816	-	-	-	-	-	-	-	-	9,379	-
2a.1.4.2	Auxiliary Building	-	92	-	-	-	-	-	14	105	105	-	-	-	-	-	-	-	-	1,333	-
2a.1.4.3	Turbine Building	-	182	-	-	-	-	-	27	209	209	-	-	-	-	-	-	-	-	3,027	-
2a.1.4.4	Fuel Building	-	70	-	-	-	-	-	10	80	80	-	-	-	-	-	-	-	-	951	-
2a.1.4	Totals	-	1,054	-	-	-	-	-	158	1,211	1,211	-	-	-	-	-	-	-	-	14,700	-
Disposal of Plant Systems																					
2a.1.5.1	Chemical Addition	-	27	-	-	-	-	-	4	31	-	-	31	-	-	-	-	-	-	821	-
2a.1.5.2	Chemical Addition RCA	-	22	0	1	70	-	-	5	62	52	-	-	222	-	-	-	-	Unit	\$0	-
2a.1.5.3	Condensate	-	579	-	-	-	-	-	11	110	-	-	150	-	-	-	-	-	-	15,699	-
2a.1.5.4	Condensate (Contaminated)	-	601	31	1	-	-	-	585	4,055	4,055	-	-	10,363	-	-	-	-	12,000	15,479	-
2a.1.5.5	Condenser Circulating Water	-	138	-	-	-	-	-	51	389	-	-	180	-	-	-	-	-	-	10,040	-
2a.1.5.6	Electric Hydraulic Turbine Control	-	18	-	-	-	-	-	3	19	-	-	20	-	-	-	-	-	-	499	-
2a.1.5.7	Feedwater & Emergency Feedwater	-	163	-	-	-	-	-	14	167	-	-	hiT	-	-	-	-	-	-	4,862	-
2a.1.5.8	Feedwater & Emergency Feedwater (Cont.)	-	172	5	1	4	-	-	12	191	144	-	-	10,000	-	-	-	-	10,000	4,387	-

Table C-1  
Oconee Nuclear Station - Unit 1  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Disposal of Plant Systems (continued)																					
2a.1.5.9	Feedwater & Emergency Feedwater RCA	-	237	6	11	438	-	-	127	820	820	-	-	4,815	-	-	-	-	195,560	5,531	-
2a.1.5.10	Heater Drains	-	358	-	-	-	-	-	55	423	-	-	423	-	-	-	-	-	-	11,003	-
2a.1.5.11	Heater Drains (Contaminated)	-	293	-	13	493	-	-	150	956	956	-	-	9,419	-	-	-	-	220,074	7,497	-
2a.1.5.12	Heater Vent	-	31	-	-	-	-	-	5	36	-	-	36	-	-	-	-	-	-	1,002	-
2a.1.5.13	High Pressure Extraction	-	24	-	-	-	-	-	4	27	-	-	27	-	-	-	-	-	-	729	-
2a.1.5.14	Hydraulic Oil	-	2	-	-	-	-	-	0	3	-	-	3	-	-	-	-	-	-	75	-
2a.1.5.15	Hydrogen	-	28	-	-	-	-	-	4	32	-	-	32	-	-	-	-	-	-	848	-
2a.1.5.16	Hydrogen Seal Oil	-	30	-	-	-	-	-	4	34	-	-	34	-	-	-	-	-	-	923	-
2a.1.5.17	Low Pressure Extraction	-	36	-	-	-	-	-	5	41	-	-	41	-	-	-	-	-	-	1,096	-
2a.1.5.18	Main Steam	-	84	-	-	-	-	-	13	97	-	-	97	-	-	-	-	-	-	2,558	-
2a.1.5.19	Main Steam RCA	-	304	37	65	2,530	-	-	469	3,405	3,406	-	-	27,808	-	-	-	3,406	1,129,284	7,693	-
2a.1.5.20	Moisture Separator Reheater Drains	-	7	0	0	6	-	-	3	15	15	-	-	85	-	-	-	-	2,629	166	-
2a.1.5.21	Post Accident Monitoring	-	29	1	1	37	-	-	13	80	80	-	-	401	-	-	-	-	16,304	785	-
2a.1.5.22	Reactor Building Spray	-	88	3	5	191	-	-	52	339	339	-	-	2,105	-	-	-	-	85,488	2,150	-
2a.1.5.23	Sample Monitoring	-	114	8	13	22	85	-	56	298	299	-	-	244	436	-	-	-	49,030	3,105	-
2a.1.5.24	Stator Coolant	-	49	-	-	-	-	-	7	56	-	-	56	-	-	-	-	-	-	1,507	-
2a.1.5.25	Steam Drain	-	81	-	-	-	-	-	12	93	-	-	93	-	-	-	-	-	-	2,668	-
2a.1.5.26	Steam Seal	-	48	-	1	48	-	-	19	116	116	-	-	533	-	-	-	-	21,649	1,150	-
2a.1.5.27	Turbine Oil	-	121	-	-	-	-	-	18	139	-	-	139	-	-	-	-	-	-	3,518	-
2a.1.5.28	Vacuum	-	114	-	-	-	-	-	17	131	-	-	131	-	-	-	-	-	-	3,438	-
2a.1.5	Totals	-	3,957	109	162	5,933	85	-	1,895	13,231	10,882	-	2,349	76,870	436	-	-	-	3,160,820	109,730	-
2a.1.6	Scaffolding in support of decommissioning	-	440	8	2	44	5	-	119	618	618	-	-	433	27	-	-	-	21,918	13,697	-
2a.1	Subtotal Period 2a Activity Costs	78	10,235	8,854	3,035	8,410	45,177	420	26,540	108,397	106,049	-	2,349	86,540	51,318	3,125	517	-	10,042,880	257,348	4,271
Period 2a Collateral Costs																					
2a.3.1	Process liquid waste	64	-	28	77	-	113	-	74	354	354	-	-	-	436	-	-	-	26,139	85	-
2a.3.2	Small tool allowance	-	192	-	-	-	-	-	29	221	199	-	22	-	-	-	-	-	-	-	-
2a.3.3	Spent Fuel Capital and Transfer	-	-	-	-	-	-	449	67	516	-	516	-	-	-	-	-	-	-	-	-
2a.3.4	Survey and Release of Scrap Metal	-	-	-	-	-	-	329	48	379	379	-	-	-	-	-	-	-	-	-	-
2a.3	Subtotal Period 2a Collateral Costs	64	192	26	77	-	113	-	220	1,470	932	516	22	-	436	-	-	-	26,139	85	-
Period 2a Period-Dependent Costs																					
2a.4.1	Decon supplies	78	-	-	-	-	-	-	19	97	97	-	-	-	-	-	-	-	-	-	-
2a.4.2	Insurance	-	-	-	-	-	-	461	46	507	507	-	-	-	-	-	-	-	-	-	-
2a.4.3	Property taxes	-	-	-	-	-	-	1,510	151	1,661	1,495	-	165	-	-	-	-	-	-	-	-
2a.4.4	Health physics supplies	-	1,760	-	-	-	-	-	440	2,200	2,200	-	-	-	-	-	-	-	-	-	-
2a.4.5	Heavy equipment rental	-	3,164	-	-	-	-	-	475	3,639	3,639	-	-	-	-	-	-	-	-	-	-
2a.4.6	Disposal of DAW generated	-	-	67	56	-	166	-	56	345	345	-	-	-	3,935	-	-	-	78,703	143	-
2a.4.7	Plant energy budget	-	-	-	-	-	-	1,809	271	2,080	2,080	-	-	-	-	-	-	-	-	-	-
2a.4.8	NRC Fees	-	-	-	-	-	-	947	95	1,041	1,041	-	-	-	-	-	-	-	-	-	-
2a.4.9	Emergency Planning Fees	-	-	-	-	-	-	404	40	444	-	444	-	-	-	-	-	-	-	-	-
2a.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	1,072	161	1,233	-	1,233	-	-	-	-	-	-	-	-	-
2a.4.11	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	270	40	310	310	-	-	-	-	-	-	-	-	-	-
2a.4.12	Indirect Overhead	-	-	-	-	-	-	3,727	559	4,286	4,286	-	-	-	-	-	-	-	-	-	-
2a.4.13	Security Staff Cost	-	-	-	-	-	-	824	124	948	948	-	-	-	-	-	-	-	-	-	32,290
2a.4.14	Utility Staff Cost	-	-	-	-	-	-	35,601	5,340	40,941	40,941	-	-	-	-	-	-	-	-	-	622,500
2a.4	Subtotal Period 2a Period-Dependent Costs	78	4,924	67	56	-	166	46,623	7,818	59,731	57,888	1,677	166	-	3,935	-	-	-	78,703	143	654,790
2a.0	TOTAL PERIOD 2a COST	865	20,352	8,940	3,168	8,410	45,456	47,822	34,578	169,598	164,868	2,193	2,537	86,540	55,689	3,125	517	-	10,147,720	257,576	659,021

Table C-1  
Oconee Nuclear Station - Unit 1  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
PERIOD 2b - Site Decontamination																					1
Period 2b Direct Decommissioning Activities																					
Disposal of Plant Systems																					
2b.1.1.1	Component Cooling	-	47	-	-	-	-	-	7	54	-	-	54	-	-	-	-	-	-	1,374	-
2b.1.1.2	Component Cooling RCA	-	116	2	3	130	-	-	49	300	300	-	-	1,430	-	-	-	-	58,079	2,674	-
2b.1.1.3	Core Flood	-	109	6	11	147	50	-	64	389	389	-	-	1,611	261	-	-	-	88,248	2,705	-
2b.1.1.4	Electrical (Clean)	-	583	-	-	-	-	-	97	670	-	-	670	-	-	-	-	-	-	16,347	-
2b.1.1.5	Electrical (Contaminated)	-	193	7	13	83	74	-	82	450	450	-	-	910	376	-	-	-	70,710	4,751	-
2b.1.1.6	Electrical (Contaminated) RCA	-	1,194	20	36	1,381	-	-	513	3,143	3,143	-	-	15,179	-	-	-	-	616,410	28,392	-
2b.1.1.7	High Pressure Injection	-	892	239	314	1,156	2,012	-	970	5,584	5,584	-	-	12,713	10,304	-	-	-	1,439,297	22,837	-
2b.1.1.8	Incore Instrumentation	-	17	0	0	-	3	-	5	25	25	-	-	-	13	-	-	-	1,168	466	-
2b.1.1.9	Low Pressure Injection	-	518	58	85	618	506	-	352	2,037	2,037	-	-	5,697	2,772	-	-	-	483,289	13,232	-
2b.1.1.10	On-Site/Off-Site Power	-	94	-	-	-	-	-	14	108	-	-	108	-	-	-	-	-	-	2,517	-
2b.1.1.11	Purge	-	149	-	11	440	-	-	100	712	712	-	-	4,842	-	-	-	-	196,641	3,591	-
2b.1.1.12	RFS Refueling Water	-	45	4	4	29	25	-	23	129	129	-	-	314	127	-	-	-	24,146	1,070	-
2b.1.1.13	Radiation Instrument Alarm	-	11	-	-	-	-	-	2	13	-	-	13	-	-	-	-	-	-	323	-
2b.1.1.14	Radiation Instrument Alarm RCA	-	29	0	0	-	-	-	6	42	42	-	-	63	-	-	-	-	2,565	788	-
2b.1.1.15	Reactor Building Cooling	-	345	25	44	1,705	-	-	351	2,471	2,471	-	-	18,745	-	-	-	-	761,247	8,761	-
2b.1.1.16	Reactor Coolant	-	241	21	19	45	129	-	104	561	561	-	-	510	663	-	-	-	80,040	6,272	-
2b.1.1.17	Reactor Coolant Storage	435	497	54	71	221	459	-	506	2,243	2,243	-	-	2,430	2,696	-	-	-	309,234	21,804	-
2b.1.1.18	Ventilation (Clean)	-	172	-	-	-	-	-	26	188	-	-	198	-	-	-	-	-	-	5,296	-
2b.1.1.19	Ventilation (Contaminated)	-	583	10	26	808	50	-	285	1,769	1,769	-	-	8,878	255	-	-	-	383,436	13,303	-
2b.1.1.20	Ventilation (clean) RCA	-	342	7	12	448	-	-	130	836	836	-	-	4,925	-	-	-	-	200,000	4,619	-
2b.1.1	Totals	435	6,075	469	650	7,119	3,307	-	3,684	21,738	20,694	-	1,044	78,247	17,467	-	-	-	4,694,512	161,122	-
2b.1.2	Scaffolding in support of decommissioning	-	550	10	2	50	7	-	149	772	772	-	-	542	34	-	-	-	27,395	17,122	-
Decontamination of Site Buildings																					
2b.1.3.1	Reactor Building	770	860	150	271	424	971	-	965	4,443	4,443	-	-	4,858	10,890	-	-	-	941,440	37,959	-
2b.1.3.2	Auxiliary Building	315	180	48	79	57	103	-	253	1,029	1,029	-	-	829	2,849	-	-	-	221,767	11,651	-
2b.1.3.3	Turbine Building	227	24	5	8	-	11	-	124	400	400	-	-	-	314	-	-	-	21,708	6,496	-
2b.1.3	Totals	1,312	1,064	203	352	481	1,085	-	1,342	5,872	5,872	-	-	5,286	14,053	-	-	-	1,184,915	56,106	-
2b.1	Subtotal Period 2b Activity Costs	1,747	7,688	715	1,004	7,653	4,398	-	5,175	28,362	27,339	-	1,044	84,075	31,554	-	-	-	5,906,822	234,350	-
Period 2b Additional Costs																					
2b.2.1	Containment Paint Remediation	92	-	-	12	-	84	-	86	264	264	-	-	-	452	-	-	-	-	800	-
2b.2	Subtotal Period 2b Additional Costs	92	-	-	12	-	84	-	86	264	264	-	-	-	452	-	-	-	-	800	-
Period 2b Collateral Costs																					
2b.3.1	Process liquid waste	135	-	64	191	-	310	-	181	887	887	-	-	-	1,079	-	-	-	72,920	210	-
2b.3.2	Small tool allowance	-	163	-	-	-	-	-	24	187	187	-	-	-	-	-	-	-	-	-	-
2b.3.3	Spent Fuel Casket and Transfer	-	-	-	-	-	-	-	611	62	702	702	-	-	-	-	-	-	-	-	-
2b.3.4	Survey and Release of Scrap Metal	-	-	-	-	-	-	-	412	62	474	474	-	-	-	-	-	-	-	-	-
2b.3	Subtotal Period 2b Collateral Costs	135	163	64	191	-	316	1,023	359	2,250	1,548	702	-	-	1,079	-	-	-	73,920	210	-
Period 2b Period-Dependent Costs																					
2b.4.1	Decon supplies	790	-	-	-	-	-	-	197	987	987	-	-	-	-	-	-	-	-	-	-
2b.4.2	Insurance	-	-	-	-	-	-	-	657	66	723	723	-	-	-	-	-	-	-	-	-
2b.4.3	Property taxes	-	-	-	-	-	-	-	1,884	185	2,040	2,040	-	-	-	-	-	-	-	-	-
2b.4.4	Health physics supplies	-	1,850	-	-	-	-	-	465	2,325	2,325	-	-	-	-	-	-	-	-	-	-
2b.4.5	Heavy equipment rental	-	4,462	-	-	-	-	-	672	5,154	5,154	-	-	-	-	-	-	-	-	-	-
2b.4.6	Disposal of DAW generated	-	-	19	57	-	170	-	58	354	354	-	-	-	4,038	-	-	-	80,794	147	-
2b.4.7	Plant energy budget	-	-	-	-	-	-	-	2,037	306	2,343	2,343	-	-	-	-	-	-	-	-	-
2b.4.8	NRC Fees	-	-	-	-	-	-	-	1,351	135	1,486	1,486	-	-	-	-	-	-	-	-	-



Table C-1  
Oconee Nuclear Station - Unit 1  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 2b Period-Dependent Costs (continued)																					
2b.4.9	Emergency Planning Fees	-	-	-	-	-	-	576	58	634	-	634	-	-	-	-	-	-	-	-	-
2b.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	1,530	229	1,759	-	1,759	-	-	-	-	-	-	-	-	-
2b.4.11	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	385	58	443	443	-	-	-	-	-	-	-	-	-	-
2b.4.12	Indirect Overhead	-	-	-	-	-	-	3,779	567	4,346	4,346	-	-	-	-	-	-	-	-	-	-
2b.4.13	Security Staff Cost	-	-	-	-	-	-	1,173	176	1,352	1,352	-	-	-	-	-	-	-	-	-	46,010
2b.4.14	Utility Staff Cost	-	-	-	-	-	-	35,360	5,304	40,663	40,663	-	-	-	-	-	-	-	-	-	631,300
2b.4	Subtotal Period 2b Period-Dependent Costs	790	6,342	68	57	-	170	48,705	9,476	64,608	62,215	2,393	-	-	4,038	-	-	-	80,764	147	677,310
2b.0	TOTAL PERIOD 2b COST	2,763	14,193	654	1,265	7,653	4,968	49,727	14,080	95,504	91,365	3,095	1,044	84,075	37,124	-	-	-	6,060,506	236,507	677,310
PERIOD 2c - Delay before Wet Fuel Storage Decontamination																					
Period 2c Direct Decommissioning Activities																					
Period 2c Collateral Costs																					
2c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	2,432	365	2,797	-	2,797	-	-	-	-	-	-	-	-	-
2c.3	Subtotal Period 2c Collateral Costs	-	-	-	-	-	-	2,432	365	2,797	-	2,797	-	-	-	-	-	-	-	-	-
Period 2c Period-Dependent Costs																					
2c.4.1	Insurance	-	-	-	-	-	-	2,371	237	2,608	-	2,608	-	-	-	-	-	-	-	-	-
2c.4.2	Property taxes	-	-	-	-	-	-	1,380	138	1,518	-	1,518	-	-	-	-	-	-	-	-	-
2c.4.3	Health physics supplies	-	-	-	-	-	-	-	172	858	-	858	-	-	-	-	-	-	-	-	-
2c.4.4	Disposal of DAW generated	-	-	15	12	-	36	-	12	75	-	75	-	-	-	-	-	-	17,190	31	-
2c.4.5	Plant energy budget	-	-	-	-	-	-	1,959	294	2,253	-	2,253	-	-	-	-	-	-	-	-	-
2c.4.6	NRC Fees	-	-	-	-	-	-	1,350	135	1,485	-	1,485	-	-	-	-	-	-	-	-	-
2c.4.7	Emergency Planning Fees	-	-	-	-	-	-	2,078	208	2,286	-	2,286	-	-	-	-	-	-	-	-	-
2c.4.8	Spent Fuel Pool O&M	-	-	-	-	-	-	5,516	827	6,344	-	6,344	-	-	-	-	-	-	-	-	-
2c.4.9	Indirect Overhead	-	-	-	-	-	-	1,910	286	2,196	-	2,196	-	-	-	-	-	-	-	-	-
2c.4.10	Security Staff Cost	-	-	-	-	-	-	9,720	1,458	11,178	-	11,178	-	-	-	-	-	-	-	-	327,979
2c.4.11	Utility Staff Cost	-	-	-	-	-	-	17,578	2,652	20,330	-	20,330	-	-	-	-	-	-	-	-	319,027
2c.4	Subtotal Period 2c Period-Dependent Costs	-	686	15	12	-	36	43,963	6,419	51,131	-	51,131	-	-	859	-	-	-	17,190	31	647,005
2c.0	TOTAL PERIOD 2c COST	-	686	15	12	-	36	46,395	6,784	53,928	-	53,928	-	-	859	-	-	-	17,190	31	647,005
PERIOD 2d - Decontamination Following Wet Fuel Storage																					
Period 2d Direct Decommissioning Activities																					
2d.1.1	Remove spent fuel racks	314	32	122	68	-	479	-	307	1,322	1,322	-	-	-	2,450	-	-	-	219,804	956	-
Disposal of Plant Systems																					
2d.1.2.1	Spent Fuel Cooling	253	245	34	36	150	229	-	275	1,211	1,211	-	-	1,644	1,208	-	-	-	171,618	9,336	-
2d.1.2	Totals	253	245	34	36	150	229	-	275	1,211	1,211	-	-	1,644	1,208	-	-	-	171,618	9,336	-
Decontamination of Site Buildings																					
2d.1.3.1	Fuel Building	202	226	5	8	83	12	-	175	711	711	-	-	916	227	-	-	-	53,074	10,113	-
2d.1.3	Totals	202	226	5	8	83	12	-	175	711	711	-	-	916	227	-	-	-	53,074	10,113	-
2d.1.4	Scaffolding in support of decommissioning	-	110	2	0	11	1	-	30	154	154	-	-	108	7	-	-	-	5,479	3,424	-
2d.1	Subtotal Period 2d Activity Costs	769	613	154	112	244	721	-	787	3,399	3,399	-	-	2,667	3,891	-	-	-	449,974	23,828	-
Period 2d Additional Costs																					
2d.2.1	License Termination Survey Management Program	-	-	-	-	-	-	616	185	801	801	-	-	-	-	-	-	-	-	-	6,240
2d.2	Subtotal Period 2d Additional Costs	-	-	-	-	-	-	616	185	801	801	-	-	-	-	-	-	-	-	-	6,240

Table C-1  
Oconee Nuclear Station - Unit 1  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 2d Collateral Costs																					
2d.3.1	Process liquid waste	97	-	64	193	-	377	-	178	910	910	-	-	-	1,086	-	-	-	86,853	212	-
2d.3.2	Small tool allowance	-	23	-	-	-	-	-	3	26	26	-	-	-	-	-	-	-	-	-	-
2d.3.3	Decommissioning Equipment Disposition	-	-	109	26	605	73	-	124	840	940	-	-	6,000	373	-	-	-	303,507	88	-
2d.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	147	22	169	-	169	-	-	-	-	-	-	-	-	-
2d.3.5	Survey and Release of Scrap Metal	-	-	-	-	-	-	82	12	95	95	-	-	-	-	-	-	-	-	-	-
2d.3	Subtotal Period 2d Collateral Costs	97	23	173	223	605	450	229	340	2,140	1,671	169	-	6,000	1,459	-	-	-	390,360	300	-
Period 2d Period-Dependent Costs																					
2d.4.1	Decon supplies	62	-	-	-	-	-	-	15	77	77	-	-	-	-	-	-	-	-	-	-
2d.4.2	Insurance	-	-	-	-	-	-	169	17	186	186	-	-	-	-	-	-	-	-	-	-
2d.4.3	Property taxes	-	-	-	-	-	-	3	0	4	4	-	-	-	-	-	-	-	-	-	-
2d.4.4	Health physics supplies	-	302	-	-	-	-	-	76	378	378	-	-	-	-	-	-	-	-	-	-
2d.4.5	Heavy equipment rental	-	1,159	-	-	-	-	-	173	1,328	1,328	-	-	-	-	-	-	-	-	-	-
2d.4.6	Disposal of DAW generated	-	-	14	12	-	35	-	13	73	73	-	-	-	838	-	-	-	16,763	31	-
2d.4.7	Plant energy budget	-	-	-	-	-	-	280	42	322	322	-	-	-	-	-	-	-	-	-	-
2d.4.8	NRC Fees	-	-	-	-	-	-	348	26	383	383	-	-	-	-	-	-	-	-	-	-
2d.4.9	Emergency Planning Fees	-	-	-	-	-	-	148	15	163	-	163	-	-	-	-	-	-	-	-	-
2d.4.10	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	199	30	228	228	-	-	-	-	-	-	-	-	-	-
2d.4.11	Indirect Overhead	-	-	-	-	-	-	604	91	695	695	-	-	-	-	-	-	-	-	-	-
2d.4.12	Security Staff Cost	-	-	-	-	-	-	85	13	98	98	-	-	-	-	-	-	-	-	-	3,309
2d.4.13	Utility Staff Cost	-	-	-	-	-	-	5,601	840	6,441	6,441	-	-	-	-	-	-	-	-	-	100,911
2d.4	Subtotal Period 2d Period-Dependent Costs	62	1,457	14	12	-	35	7,438	1,359	10,377	10,214	163	-	-	838	-	-	-	16,763	31	104,220
2d.0	TOTAL PERIOD 2d COST	929	2,093	341	346	846	1,208	8,284	2,871	16,718	16,386	332	-	8,667	8,188	-	-	-	857,097	34,159	110,460
PERIOD 2e - License Termination																					
Period 2e Direct Decommissioning Activities																					
2e.1.1	ORISE confirmatory survey	-	-	-	-	-	-	150	45	195	195	-	-	-	-	-	-	-	-	-	-
2e.1.2	Terminate license	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2e.1	Subtotal Period 2e Activity Costs	-	-	-	-	-	-	150	45	195	195	-	-	-	-	-	-	-	-	-	-
Period 2e Additional Costs																					
2e.2.1	License Termination Survey	-	-	-	-	-	-	5,445	1,633	7,078	7,078	-	-	-	-	-	-	-	-	135,747	3,120
2e.2	Subtotal Period 2e Additional Costs	-	-	-	-	-	-	5,445	1,632	7,078	7,078	-	-	-	-	-	-	-	-	135,747	3,120
Period 2e Collateral Costs																					
2e.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	37	6	43	-	43	-	-	-	-	-	-	-	-	-
2e.3	Subtotal Period 2e Collateral Costs	-	-	-	-	-	-	37	6	43	-	43	-	-	-	-	-	-	-	-	-
Period 2e Period-Dependent Costs																					
2e.4.1	Insurance	-	-	-	-	-	-	217	22	239	239	-	-	-	-	-	-	-	-	-	-
2e.4.2	Property taxes	-	-	-	-	-	-	5	0	5	5	-	-	-	-	-	-	-	-	-	-
2e.4.3	Health physics supplies	-	835	-	-	-	-	-	209	1,044	1,044	-	-	-	-	-	-	-	-	-	-
2e.4.4	Disposal of DAW generated	-	-	5	1	-	13	-	5	28	28	-	-	-	315	-	-	-	6,299	11	-
2e.4.5	Plant energy budget	-	-	-	-	-	-	199	30	229	229	-	-	-	-	-	-	-	-	-	-
2e.4.6	NRC Fees	-	-	-	-	-	-	532	53	585	585	-	-	-	-	-	-	-	-	-	-
2e.4.7	Emergency Planning Fees	-	-	-	-	-	-	25	3	28	-	28	-	-	-	-	-	-	-	-	-
2e.4.8	Indirect Overhead	-	-	-	-	-	-	414	62	476	476	-	-	-	-	-	-	-	-	-	-
2e.4.9	Security Staff Cost	-	-	-	-	-	-	122	18	140	140	-	-	-	-	-	-	-	-	-	4,714
2e.4.10	Utility Staff Cost	-	-	-	-	-	-	4,060	609	4,669	4,669	-	-	-	-	-	-	-	-	-	69,143
2e.4	Subtotal Period 2e Period-Dependent Costs	-	835	5	4	-	13	5,574	1,011	7,443	7,415	28	-	-	315	-	-	-	6,299	11	73,857
2e.0	TOTAL PERIOD 2e COST	-	835	5	4	-	13	11,206	2,896	14,759	14,689	70	-	-	315	-	-	-	6,299	135,759	76,977
PERIOD 2 TOTALS																					
		4,557	38,180	10,162	4,796	16,912	51,680	163,433	60,807	350,508	287,308	59,620	3,580	179,283	100,176	3,125	517	-	17,088,810	653,031	2,170,774

Table C-1  
Oconee Nuclear Station - Unit 1  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				GTCC	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet					
PERIOD 3b - Site Restoration																						
Period 3b Direct Decommissioning Activities																						
Demolition of Remaining Site Buildings:																						
3b.1.1.1	Reactor Building	-	4,114	-	-	-	-	-	617	4,731	-	-	4,731	-	-	-	-	-	-	-	53,465	-
3b.1.1.2	Auxiliary Building	-	826	-	-	-	-	-	124	950	-	-	950	-	-	-	-	-	-	-	12,013	-
3b.1.1.3	Turbine Building	-	1,762	-	-	-	-	-	264	2,026	-	-	2,026	-	-	-	-	-	-	-	31,130	-
3b.1.1.4	Turbine Pedestal	-	262	-	-	-	-	-	39	301	-	-	301	-	-	-	-	-	-	-	3,192	-
3b.1.1.5	Fuel Building	-	648	-	-	-	-	-	97	745	-	-	745	-	-	-	-	-	-	-	9,163	-
3b.1.1	Totals	-	7,611	-	-	-	-	-	1,142	8,753	-	-	8,753	-	-	-	-	-	-	-	108,963	-
Site Closeout Activities																						
3b.1.2	Grade & landscape site	-	112	-	-	-	-	-	17	129	-	-	129	-	-	-	-	-	-	-	250	-
3b.1.3	Final report to NRC	-	-	-	-	-	-	109	16	121	121	-	-	-	-	-	-	-	-	-	-	1,560
3b.1	Subtotal Period 3b Activity Costs	-	7,723	-	-	-	-	109	1,174	9,003	121	-	8,882	-	-	-	-	-	-	-	109,213	1,560
Period 3b Additional Costs																						
3b.2.1	Concrete Crushing	-	270	-	-	-	-	2	41	313	-	-	313	-	-	-	-	-	-	-	1,376	-
3b.2	Subtotal Period 3b Additional Costs	-	270	-	-	-	-	2	41	313	-	-	313	-	-	-	-	-	-	-	1,376	-
Period 3b Collateral Costs																						
3b.3.1	Small tool allowance	-	79	-	-	-	-	-	12	91	-	-	91	-	-	-	-	-	-	-	-	-
3b.3.2	Spent Fuel Capital and Transfer	-	-	-	-	-	-	159	24	183	-	183	-	-	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	-	79	-	-	-	-	159	36	274	-	183	91	-	-	-	-	-	-	-	-	-
Period 3b Period-Dependent Costs																						
3b.4.1	Insurance	-	-	-	-	-	-	688	67	735	0	661	73	-	-	-	-	-	-	-	-	-
3b.4.2	Property taxes	-	-	-	-	-	-	15	2	17	-	-	17	-	-	-	-	-	-	-	-	-
3b.4.3	Heavy equipment rental	-	6,792	-	-	-	-	-	1,019	7,811	-	-	7,811	-	-	-	-	-	-	-	-	-
3b.4.4	Plant energy budget	-	-	-	-	-	-	307	46	353	-	318	35	-	-	-	-	-	-	-	-	-
3b.4.5	Emergency Planning Fees	-	-	-	-	-	-	77	8	85	-	85	-	-	-	-	-	-	-	-	-	-
3b.4.6	Indirect Overhead	-	-	-	-	-	-	739	111	850	850	-	-	-	-	-	-	-	-	-	-	-
3b.4.7	Security Staff Cost	-	-	-	-	-	-	160	24	184	0	129	55	-	-	-	-	-	-	-	-	6,050
3b.4.8	Utility Staff Cost	-	-	-	-	-	-	6,888	1,033	7,921	0	7,129	792	-	-	-	-	-	-	-	-	123,420
3b.4	Subtotal Period 3b Period-Dependent Costs	-	6,762	-	-	-	-	8,854	2,309	17,955	850	8,322	8,783	-	-	-	-	-	-	-	-	139,470
3b.0	TOTAL PERIOD 3b COST	-	14,864	-	-	-	-	9,121	3,560	27,545	971	8,505	18,068	-	-	-	-	-	-	-	110,589	131,030
PERIOD 3d - GTCC shipping																						
Period 3d Direct Decommissioning Activities																						
Nuclear Steam Supply System Removal																						
3d.1.1.1	Vessel & Internals GTCC Disposal	-	-	-	-	-	9,749	-	1,462	11,212	11,212	-	-	-	-	-	-	440	79,646	-	-	-
3d.1.1	Totals	-	-	-	-	-	9,749	-	1,462	11,212	11,212	-	-	-	-	-	-	440	79,646	-	-	-
3d.1	Subtotal Period 3d Activity Costs	-	-	-	-	-	9,749	-	1,462	11,212	11,212	-	-	-	-	-	-	440	79,646	-	-	-
3d.0	TOTAL PERIOD 3d COST	-	-	-	-	-	9,749	-	1,462	11,212	11,212	-	-	-	-	-	-	440	79,646	-	-	-
PERIOD 3 TOTALS																						
		-	14,864	-	-	-	9,749	9,121	5,022	38,756	12,183	8,505	18,068	-	-	-	-	440	79,646	110,589	131,030	
TOTAL COST TO DECOMMISSION		7,412	58,394	10,230	5,264	16,912	66,007	247,889	80,343	482,457	398,442	71,928	23,487	178,283	126,796	3,887	517	440	17,614,750	819,459	3,196,307	

Table C-1  
Oconee Nuclear Station - Unit 1  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes					Burial i Wt. Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet				

TOTAL COST TO DECOMMISSION WITH 19.5% CONTINGENCY:					\$492,457	thousands of 2008 dollars															
TOTAL NRC LICENSE TERMINATION COST IS 80.9% OR:					\$398,442	thousands of 2008 dollars															
SPENT FUEL MANAGEMENT COST IS 14.5% OR:					\$71,528	thousands of 2008 dollars															
NON-NUCLEAR DEMOLITION COST IS 4.6% OR:					\$22,487	thousands of 2008 dollars															
TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC):					131,200	cubic feet															
TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED:					440	cubic feet															
TOTAL SCRAP METAL REMOVED:					43,796	tons															
TOTAL CRAFT LABOR REQUIREMENTS:					819,459	man-hours															

End Notes:  
n/a - indicates that this activity not charged as decommissioning expense  
a - indicates that this activity performed by decommissioning staff  
0 - indicates that this value is less than 0.5 but is non-zero  
a cell containing "-" indicates a zero value

Table C-2  
Oconee Nuclear Station - Unit 2  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
PERIOD 1a - Shutdown through Transition																					
Period 1a Direct Decommissioning Activities																					
1a.1.1	Prepare preliminary decommissioning cost	-	-	-	-	-	-	38	6	43	43	-	-	-	-	-	-	-	-	-	556
1a.1.2	Notification of Cessation of Operations	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
1a.1.3	Remove fuel & source material	-	-	-	-	-	-	-	-	n/a	-	-	-	-	-	-	-	-	-	-	-
1a.1.4	Notification of Permanent Defueling	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
1a.1.5	Deactivate plant systems & process waste	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
1a.1.6	Prepare and submit PSDAR	-	-	-	-	-	-	58	9	67	67	-	-	-	-	-	-	-	-	-	856
1a.1.7	Review plant dwgs. & specs.	-	-	-	-	-	-	133	20	153	153	-	-	-	-	-	-	-	-	-	1,965
1a.1.8	Perform detailed rad survey	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
1a.1.9	Estimate by-product inventory	-	-	-	-	-	-	29	4	33	33	-	-	-	-	-	-	-	-	-	428
1a.1.10	End product description	-	-	-	-	-	-	29	4	33	33	-	-	-	-	-	-	-	-	-	428
1a.1.11	Detailed by-product inventory	-	-	-	-	-	-	38	6	43	43	-	-	-	-	-	-	-	-	-	556
1a.1.12	Define major work sequence	-	-	-	-	-	-	217	33	250	250	-	-	-	-	-	-	-	-	-	3,210
1a.1.13	Perform SER and EA	-	-	-	-	-	-	90	13	103	103	-	-	-	-	-	-	-	-	-	1,327
1a.1.14	Perform Site-Specific Cost Study	-	-	-	-	-	-	145	22	166	166	-	-	-	-	-	-	-	-	-	2,140
1a.1.15	Prepare/submit License Termination Plan	-	-	-	-	-	-	119	18	136	136	-	-	-	-	-	-	-	-	-	1,753
1a.1.16	Receive NRC approval of termination plan	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
Activity Specifications																					
1a.1.17.1	Plant & temporary facilities	-	-	-	-	-	-	142	21	164	147	-	16	-	-	-	-	-	-	-	2,106
1a.1.17.2	Plant systems	-	-	-	-	-	-	121	18	139	125	-	14	-	-	-	-	-	-	-	1,783
1a.1.17.3	USSS Decontamination Flush	-	-	-	-	-	-	14	2	17	17	-	-	-	-	-	-	-	-	-	214
1a.1.17.4	Reactor internals	-	-	-	-	-	-	206	31	236	236	-	-	-	-	-	-	-	-	-	3,029
1a.1.17.5	Reactor vessel	-	-	-	-	-	-	186	28	216	216	-	-	-	-	-	-	-	-	-	2,782
1a.1.17.6	Biological shield	-	-	-	-	-	-	14	2	17	17	-	-	-	-	-	-	-	-	-	214
1a.1.17.7	Steam generators	-	-	-	-	-	-	80	14	104	104	-	-	-	-	-	-	-	-	-	1,335
1a.1.17.8	Reinforced concrete	-	-	-	-	-	-	46	7	53	27	-	27	-	-	-	-	-	-	-	685
1a.1.17.9	Main Turbine	-	-	-	-	-	-	12	2	13	-	-	13	-	-	-	-	-	-	-	171
1a.1.17.10	Main Condensers	-	-	-	-	-	-	12	2	13	-	-	13	-	-	-	-	-	-	-	171
1a.1.17.11	Plant structures & buildings	-	-	-	-	-	-	90	14	104	52	-	52	-	-	-	-	-	-	-	1,335
1a.1.17.12	Waste management	-	-	-	-	-	-	133	20	153	153	-	-	-	-	-	-	-	-	-	1,965
1a.1.17.13	Facility & site closeout	-	-	-	-	-	-	26	4	30	15	-	15	-	-	-	-	-	-	-	385
1a.1.17	Total	-	-	-	-	-	-	1,095	164	1,259	1,109	-	150	-	-	-	-	-	-	-	15,190
Planning & Site Preparations																					
1a.1.18	Prepare dismantling sequence	-	-	-	-	-	-	68	10	80	80	-	-	-	-	-	-	-	-	-	1,027
1a.1.19	Plant prep. & temp. svcs.	-	-	-	-	-	-	2,700	405	3,105	3,105	-	-	-	-	-	-	-	-	-	-
1a.1.20	Design water clean-up system	-	-	-	-	-	-	41	6	47	47	-	-	-	-	-	-	-	-	-	599
1a.1.21	Rigging/Cont. Cont. Envrp./tooling/etc.	-	-	-	-	-	-	2,100	315	2,415	2,415	-	-	-	-	-	-	-	-	-	-
1a.1.22	Procure casks/liners & containers	-	-	-	-	-	-	36	5	41	41	-	-	-	-	-	-	-	-	-	526
1a.1	Subtotal Period 1a Activity Costs	-	-	-	-	-	-	6,535	1,040	7,575	7,625	-	150	-	-	-	-	-	-	-	31,566
Period 1a Additional Costs																					
1a.2.1	Asbestos Remediation	-	2,759	1	283	-	2,164	-	1,273	6,481	6,481	-	-	-	25,455	-	-	-	330,915	35,451	-
1a.2	Subtotal Period 1a Additional Costs	-	2,759	1	283	-	2,164	-	1,273	6,481	6,481	-	-	-	25,455	-	-	-	330,915	35,451	-
Period 1a Collateral Costs																					
1a.3.1	Small tool allowance	-	42	-	-	-	-	-	6	48	48	-	-	-	-	-	-	-	-	-	-
1a.3.2	Spent Fuel Capital and Transfer	-	-	-	-	-	-	695	104	800	-	800	-	-	-	-	-	-	-	-	-
1a.3	Subtotal Period 1a Collateral Costs	-	42	-	-	-	-	695	111	848	48	800	-	-	-	-	-	-	-	-	-
Period 1a Period-Dependent Costs																					
1a.4.1	Insurance	-	-	-	-	-	-	775	77	852	852	-	-	-	-	-	-	-	-	-	-
1a.4.2	Property taxes	-	-	-	-	-	-	1,712	171	1,883	1,883	-	-	-	-	-	-	-	-	-	-



Table C-2  
Oroville Nuclear Station - Unit 2  
DECON Decommissioning Cost Estimate  
(in thousands of 2008 dollars)

Activity Index	Activity Description	Overhead Cost	Removal Cost	Packaging Costs	Transport Costs	Off-site Placing Costs	LWRV Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Remediation Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	Gravel Proctured WT. lbs.	Craft Manhours	Utility and Contractor Manhours
Period 1a Period-Dependent Costs (continued)																				
1a.4.3	Health physics supplies	-	285	-	-	-	-	-	100	285	750	-	-	-	-	-	-	-	-	-
1a.4.4	Heavy equipment rental	-	200	-	-	-	-	-	60	260	126	-	-	-	-	-	-	-	-	-
1a.4.5	Disposal At OADR permiting	-	-	10	-	-	30	-	50	50	50	-	-	-	10	-	-	-	20	-
1a.4.6	Plant entry (audit)	-	-	-	-	-	-	100	150	150	150	-	-	-	-	-	-	-	-	-
1a.4.7	Field FrH	-	-	-	-	-	-	50	50	50	50	-	-	-	-	-	-	-	-	-
1a.4.8	Emergency Planning Fees	-	-	-	-	-	-	50	50	50	-	300	-	-	-	-	-	-	-	-
1a.4.9	EMAP/FH	-	-	-	-	-	-	20	20	20	145	-	-	-	-	-	-	-	-	-
1a.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	100	100	100	-	850	-	-	-	-	-	-	-	-
1a.4.11	Indirect Outhaul	-	-	-	-	-	-	100	100	100	2,455	-	-	-	-	-	-	-	-	-
1a.4.12	Security "SIA" Cost	-	-	-	-	-	-	100	100	100	2,368	-	-	-	-	-	-	-	-	400
1a.4.13	Utility Mail Cost	-	-	-	-	-	-	100	100	100	22,125	-	-	-	-	-	-	-	-	20
1a.4	Subtotal Period 1a Period-Dependent Costs	-	1,000	10	30	-	30	27,990	1,000	33,340	32,178	1,000	-	-	10	-	-	-	1,000	400
1a.5	TOTAL PERIOD 1a COST	-	1,000	10	30	-	30	27,990	1,000	33,340	32,178	1,000	-	-	10	-	-	-	1,000	400
PERIOD 1b - Decommissioning Precautions																				
Period 1b Direct Decommissioning Activities																				
1b.1 Work Procedures																				
1b.1.1	Plant Systems	-	-	-	-	-	-	90	90	90	140	-	10	-	-	-	-	-	-	1,000
1b.1.2	NSSS Decontamination Flush	-	-	-	-	-	-	20	20	20	80	-	-	-	-	-	-	-	-	400
1b.1.3	Reactor Internals	-	-	-	-	-	-	70	70	70	80	-	-	-	-	-	-	-	-	1,100
1b.1.4	Remaining substructure	-	-	-	-	-	-	30	30	30	10	-	10	-	-	-	-	-	-	100
1b.1.5	CRD Control Assembly	-	-	-	-	-	-	40	40	40	10	-	-	-	-	-	-	-	-	400
1b.1.6	CRD housings & test rig	-	-	-	-	-	-	20	20	20	10	-	-	-	-	-	-	-	-	400
1b.1.7	Incineration Unit	-	-	-	-	-	-	40	40	40	10	-	-	-	-	-	-	-	-	400
1b.1.8	Reactor Building	-	-	-	-	-	-	100	100	100	120	-	-	-	-	-	-	-	-	1,500
1b.1.9	Finality Plate	-	-	-	-	-	-	50	50	50	20	-	20	-	-	-	-	-	-	500
1b.1.10	Manifold shields	-	-	-	-	-	-	40	40	40	15	-	-	-	-	-	-	-	-	150
1b.1.11	Containment shield	-	-	-	-	-	-	35	35	35	40	-	-	-	-	-	-	-	-	500
1b.1.12	Steam generator	-	-	-	-	-	-	130	130	130	150	-	-	-	-	-	-	-	-	1,500
1b.1.13	Containment Building	-	-	-	-	-	-	20	20	20	10	-	-	-	-	-	-	-	-	400
1b.1.14	Containment Building	-	-	-	-	-	-	40	40	40	50	-	-	-	-	-	-	-	-	500
1b.1.15	Atmospheric Condensers	-	-	-	-	-	-	40	40	40	50	-	-	-	-	-	-	-	-	500
1b.1.16	Atmospheric Condensers	-	-	-	-	-	-	70	70	70	80	-	-	-	-	-	-	-	-	1,000
1b.1.17	Reactor Building	-	-	-	-	-	-	70	70	70	80	-	-	-	-	-	-	-	-	1,000
1b.1	Subtotal	-	-	-	-	-	-	960	960	960	1,100	-	300	-	-	-	-	-	-	1,000
1b.2	Decom primary loop	515	-	-	-	-	-	-	258	773	773	-	-	-	-	-	-	-	1,000	-
1b.3	Subtotal Period 1b Activity (Direct)	515	-	-	-	-	-	-	258	773	773	-	-	-	-	-	-	-	1,000	-
Period 1b Additional Costs																				
1b.2.1	Decommissioning Precautions	-	-	-	-	-	-	4,000	100	5,000	1,400	-	-	-	-	-	-	-	-	-
1b.2.2	Site Characterization Survey	-	-	-	-	-	-	1,000	100	1,100	1,200	-	-	-	-	-	-	-	3,000	-
1b.3	Subtotal Period 1b Additional Costs	-	-	-	-	-	-	5,000	200	6,100	2,600	-	-	-	-	-	-	-	3,000	-
Period 1b Collateral Costs																				
1b.3.1	Process equipment	100	-	-	-	-	-	-	100	100	100	-	-	-	-	-	-	-	-	-
1b.3.2	Process equipment	100	-	-	-	-	-	-	100	100	100	-	-	-	-	-	-	-	-	-
1b.3.3	Storage equipment	100	-	-	-	-	-	-	100	100	100	-	-	-	-	-	-	-	-	-
1b.3.4	Process equipment	100	-	-	-	-	-	-	100	100	100	-	-	-	-	-	-	-	-	-
1b.3.5	Process equipment	100	-	-	-	-	-	-	100	100	100	-	-	-	-	-	-	-	-	-
1b.3.6	Storage equipment	100	-	-	-	-	-	-	100	100	100	-	-	-	-	-	-	-	-	-
1b.3	Subtotal Period 1b Collateral Costs	500	-	-	-	-	-	-	500	500	500	-	-	-	-	-	-	-	-	-

Table C-2  
Oconee Nuclear Station - Unit 2  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 1b Period-Dependent Costs																					
1b.4.1	Decon supplies	27	-	-	-	-	-	-	7	34	34	-	-	-	-	-	-	-	-	-	-
1b.4.2	Insurance	-	-	-	-	-	-	393	39	432	432	-	-	-	-	-	-	-	-	-	-
1b.4.3	Property taxes	-	-	-	-	-	-	251	25	276	276	-	-	-	-	-	-	-	-	-	-
1b.4.4	Health physics supplies	-	240	-	-	-	-	-	50	300	300	-	-	-	-	-	-	-	-	-	-
1b.4.5	Heavy equipment rental	-	232	-	-	-	-	-	35	267	267	-	-	-	-	-	-	-	-	-	-
1b.4.6	Disposal of DAW generated	-	-	0	5	-	14	-	5	29	29	-	-	-	328	-	-	-	6,551	2	-
1b.4.7	Plant energy budget	-	-	-	-	-	-	1,342	201	1,543	1,543	-	-	-	-	-	-	-	-	-	-
1b.4.8	NRC Fees	-	-	-	-	-	-	239	24	263	263	-	-	-	-	-	-	-	-	-	-
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	142	14	157	-	157	-	-	-	-	-	-	-	-	-
1b.4.10	FEMA Fees	-	-	-	-	-	-	64	10	73	73	-	-	-	-	-	-	-	-	-	-
1b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	378	57	435	-	435	-	-	-	-	-	-	-	-	-
1b.4.12	Indirect Overhead	-	-	-	-	-	-	1,329	198	1,521	1,521	-	-	-	-	-	-	-	-	-	-
1b.4.13	Security Staff Cost	-	-	-	-	-	-	603	90	693	693	-	-	-	-	-	-	-	-	-	23,659
1b.4.14	Utility Staff Cost	-	-	-	-	-	-	12,170	1,825	13,995	13,995	-	-	-	-	-	-	-	-	-	220,943
1b.4	Subtotal Period 1b Period-Dependent Costs	27	472	-	5	-	14	16,904	2,591	20,018	19,427	591	-	-	328	-	-	-	6,551	12	244,602
1b.0	TOTAL PERIOD 1b COST	2,855	1,473	62	195	-	2,387	23,985	5,230	36,187	35,181	778	208	-	516	762	-	-	102,376	9,431	262,187
PERIOD 1 TOTALS		2,855	5,318	73	467	-	4,575	58,613	11,915	84,816	81,713	2,744	359	-	26,542	762	-	-	444,711	44,903	697,088
PERIOD 2a - Large Component Removal																					
Period 2a Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
2a.1.1.1	Reactor Coolant Piping	156	150	16	59	-	254	-	198	798	798	-	-	-	965	-	-	-	116,739	7,013	-
2a.1.1.2	Pressurizer Relief Tank	14	12	3	7	-	45	-	23	104	104	-	-	-	188	-	-	-	20,849	612	-
2a.1.1.3	Reactor Coolant Pumps & Motors	110	89	40	367	143	2,312	-	719	3,680	3,680	-	-	498	8,997	-	-	-	824,389	4,808	-
2a.1.1.4	Pressurizer	33	45	224	-	-	1,177	-	355	1,935	1,935	-	-	-	1,847	-	-	-	107,604	2,361	-
2a.1.1.5	Steam Generators	140	1,617	1,164	791	-	11,288	-	3,581	18,781	18,781	-	-	-	12,866	-	-	-	1,810,770	11,616	1,167
2a.1.1.6	Retired Steam Generator Units	-	-	685	760	-	11,288	-	3,004	15,737	15,737	-	-	-	12,866	-	-	-	1,810,770	5,400	750
2a.1.1.7	CRDMs/ClCs/Service Structure Removal	132	73	237	84	-	169	-	163	859	859	-	-	-	3,518	-	-	-	77,700	4,476	-
2a.1.1.8	Reactor Vessel Internals	89	2,160	4,528	510	-	8,556	210	7,234	23,287	23,287	-	-	-	626	1,122	517	-	287,160	26,133	1,177
2a.1.1.9	Reactor Vessel	63	4,233	1,358	246	-	9,701	310	8,492	24,313	24,313	-	-	-	6,862	2,003	-	-	856,040	26,133	1,177
2a.1.1	Totals	738	8,569	8,365	2,719	143	44,762	420	23,757	89,494	89,494	-	-	498	48,734	3,125	517	-	6,012,022	88,253	4,271
Removal of Major Equipment																					
2a.1.2	Main Turbine/Generator	-	308	259	78	727	364	-	322	2,088	2,088	-	-	3,819	2,127	-	-	-	515,468	7,674	-
2a.1.3	Main Condensers	-	919	113	54	558	291	-	398	2,283	2,283	-	-	5,044	1,487	-	-	-	380,419	23,585	-
Cascading Costs from Clean Building Demolition																					
2a.1.4.1	Reactor Building	-	710	-	-	-	-	-	106	816	816	-	-	-	-	-	-	-	-	9,339	-
2a.1.4.2	Auxiliary Building	-	30	-	-	-	-	-	14	105	105	-	-	-	-	-	-	-	-	1,333	-
2a.1.4.3	Turbine Building	-	156	-	-	-	-	-	23	179	179	-	-	-	-	-	-	-	-	2,697	-
2a.1.4.4	Fuel Building	-	70	-	-	-	-	-	10	80	80	-	-	-	-	-	-	-	-	961	-
2a.1.4	Totals	-	1,027	-	-	-	-	-	154	1,181	1,181	-	-	-	-	-	-	-	-	14,370	-
Disposal of Plant Systems																					
2a.1.5.1	Chemical Addition	-	27	-	-	-	-	-	4	31	-	-	31	-	-	-	-	-	-	821	-
2a.1.5.2	Chemical Addition RCA	-	22	0	0	20	-	-	9	52	52	-	-	222	-	-	-	-	9,016	501	-
2a.1.5.3	Condensate	-	529	-	-	-	-	-	79	609	-	-	609	-	-	-	-	-	-	15,699	-
2a.1.5.4	Condensate (Contaminated)	-	601	39	71	2,764	-	-	580	4,055	4,055	-	-	30,383	-	-	-	-	1,233,881	15,479	-
2a.1.5.5	Condenser Circulating Water	-	338	-	-	-	-	-	51	389	-	-	389	-	-	-	-	-	-	10,040	-
2a.1.5.6	Electro Hydraulic Turbine Control	-	18	-	-	-	-	-	3	20	-	-	20	-	-	-	-	-	-	499	-
2a.1.5.7	Feedwater & Emergency Feedwater	-	193	-	-	-	-	-	24	187	-	-	187	-	-	-	-	-	-	4,862	-
2a.1.5.8	Feedwater & Emergency Feedwater (Cont.)	-	172	6	11	443	-	-	112	744	744	-	-	4,873	-	-	-	-	197,906	4,387	-

Table C-2  
Oconee Nuclear Station - Unit 2  
Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Onsite Processing Costs	HLW Disposal Costs	Other Costs	Total Offsite Costs	Total Onsite Costs	UIC HLW Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GLW Cu. Feet	Burial Processed Wt., Lbs.	Craft Manhours	Union Hourly Rate
Disposal of Plant Systems (continued)																					
2a.15.9	Feedwater & Emergency Feedwater RCA	-	37	9	13	438	-	-	127	820	127	-	-	4,003	-	-	-	-	195,560	1,531	-
2a.15.10	Condenser Isolation	-	30	-	-	-	-	-	59	4,23	-	-	-	-	-	-	-	-	-	11,001	-
2a.15.11	High Pressure Ejectors (Contaminated)	-	50	7	H	983	-	-	150	956	956	-	-	5,419	-	-	-	-	270,074	7,411	-
2a.15.12	High Pressure Ejectors	-	14	-	-	-	-	-	5	16	-	-	-	111	-	-	-	-	-	1,002	-
2a.15.13	High Pressure Ejectors	-	14	-	-	-	-	-	5	16	-	-	-	111	-	-	-	-	-	729	-
2a.15.14	High Pressure Ejectors	-	2	-	-	-	-	-	0	3	-	-	-	3	-	-	-	-	-	73	-
2a.15.15	Hydrogen	-	28	-	-	-	-	-	11	31	-	-	-	37	-	-	-	-	-	1,011	-
2a.15.16	Hydrogen Seal Gas	-	10	-	-	-	-	-	1	14	-	-	-	11	-	-	-	-	-	923	-
2a.15.17	Low Pressure Ejectors/Valves/On	-	16	-	-	-	-	-	5	16	-	-	-	41	-	-	-	-	-	1,006	-
2a.15.18	High Pressure Ejectors	-	11	-	-	-	-	-	13	97	-	-	-	17	-	-	-	-	-	2,558	-
2a.15.19	High Pressure Ejectors RCA	-	104	37	50	2,530	-	-	109	7,408	7,408	-	-	0,008	-	-	-	-	1,129,284	7,691	-
2a.15.20	Post Accident Monitoring	-	15	1	1	19	-	-	52	118	331	-	-	401	-	-	-	-	16,101	1,001	-
2a.15.21	Reactor Building Spray	-	11	3	1	19	-	-	52	118	331	-	-	2,001	-	-	-	-	16,101	1,001	-
2a.15.22	Recirculating Cooling Water (Shared 1&2)	-	182	-	-	-	-	-	27	209	-	-	-	209	-	-	-	-	-	15,410	-
2a.15.23	Recirculating Cooling Water (Shared 1&2) RCA	-	11	2	1	19	-	-	52	118	331	-	-	2,001	-	-	-	-	16,101	1,001	-
2a.15.24	Sample Monitoring	-	114	8	13	27	95	-	14	298	298	-	-	244	-	-	-	-	41,001	1,001	-
2a.15.25	Stator Coolant	-	15	-	-	-	-	-	7	19	-	-	-	50	-	-	-	-	-	1,507	-
2a.15.26	Steam Generator	-	11	-	-	-	-	-	11	60	-	-	-	81	-	-	-	-	-	1,611	-
2a.15.27	Steam Generator Seal	-	11	1	-	45	-	-	19	118	118	-	-	331	-	-	-	-	2,001	1,001	-
2a.15.28	Steam Generator	-	11	-	-	-	-	-	18	138	-	-	-	131	-	-	-	-	-	3,518	-
2a.15.29	Vacuum	-	11	-	-	-	-	-	11	131	-	-	-	111	-	-	-	-	-	3,418	-
2a.15.30	Turbine	-	4,003	171	118	7,408	60	-	1,009	13,765	13,765	-	-	2,558	7,111	408	-	-	1,129,284	7,691	-
2a.15.31	Scaffolding in support of O&M Commissioning	-	118	8	-	45	5	-	77	640	640	-	-	41	-	-	-	-	2,001	1,001	-
2a.15.32	Subtotal Period 2a Activity Costs	738	1,525	1,556	3,124	1,566	19,567	420	26,719	109,451	106,893	-	-	2,558	88,111	52,811	3,125	517	10,129,284	268,179	1,427
Period 2a Period-Dependent Costs																					
2a.15.33	Collateral Costs	65	-	26	68	-	101	-	71	350	350	-	-	-	-	-	-	-	2,001	86	-
2a.15.34	Provisions/Inventory	-	188	-	-	-	-	-	33	27	205	-	-	23	-	-	-	-	-	-	-
2a.15.35	Small tool allowance	-	-	-	-	-	-	-	31	391	-	-	-	-	-	-	-	-	-	-	-
2a.15.36	Spent Fuel Element P&M/HAZOP	-	-	-	-	-	-	-	36	683	683	-	-	-	-	-	-	-	-	-	-
2a.15.37	Survey and Release of Spent Fuel	65	188	26	68	-	101	-	71	350	350	-	-	-	-	-	-	-	2,001	86	-
2a.15.38	Subtotal Period 2a Period-Dependent Costs	65	188	26	68	-	101	-	71	350	350	-	-	-	-	-	-	-	2,001	86	-
Period 2a Period-Dependent Costs																					
2a.15.39	Decon supplies	61	-	-	-	-	-	-	15	77	77	-	-	-	-	-	-	-	-	-	-
2a.15.40	Insurance	-	-	-	-	-	-	-	36	101	101	-	-	-	-	-	-	-	-	-	-
2a.15.41	Property taxes	-	-	-	-	-	-	-	101	1,159	1,159	-	-	116	-	-	-	-	-	-	-
2a.15.42	Health physics supplies	-	1,001	-	-	-	-	-	215	1,001	1,001	-	-	-	-	-	-	-	-	-	-
2a.15.43	Heavy equipment rental	-	2,501	-	-	-	-	-	118	2,876	2,876	-	-	-	-	-	-	-	-	-	-
2a.15.44	Disposal of DAW generated	-	-	64	64	-	180	-	14	118	118	-	-	-	-	-	-	-	75,754	118	-
2a.15.45	Plant energy budget	-	-	-	-	-	-	-	118	1,101	1,101	-	-	-	-	-	-	-	-	-	-
2a.15.46	NRC Fees	-	-	-	-	-	-	-	512	51	564	-	-	-	-	-	-	-	-	-	-
2a.15.47	Emergency Planning Fees	-	-	-	-	-	-	-	319	32	351	-	-	-	-	-	-	-	-	-	-
2a.15.48	Spent Fuel Pool O&M	-	-	-	-	-	-	-	848	1	849	-	-	975	-	-	-	-	-	-	-
2a.15.49	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	-	118	32	245	-	-	-	-	-	-	-	-	-	-
2a.15.50	Indirect Overhead	-	-	-	-	-	-	-	442	3,388	3,388	-	-	-	-	-	-	-	-	-	-
2a.15.51	Security Staff Cost	-	-	-	-	-	-	-	651	118	118	-	-	-	-	-	-	-	-	-	-
2a.15.52	Utility Staff Cost	-	-	-	-	-	-	-	28,144	32,101	12,163	-	-	-	-	-	-	-	-	-	-
2a.15.53	Subtotal Period 2a Period-Dependent Costs	61	4,003	64	64	-	180	-	6,219	32,101	12,163	-	-	116	-	-	-	-	75,754	118	-
2a.15.54	Subtotal Period 2a Activity Costs	865	19,882	1,640	3,192	1,566	19,747	420	32,938	158,052	119,046	-	-	2,674	88,111	52,811	3,125	517	10,129,284	268,179	1,427

Table C-2  
Oconee Nuclear Station - Unit 2  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
PERIOD 2b - Site Decontamination																					
Period 2b Direct Decommissioning Activities																					
Disposal of Plant Systems																					
2b.1.1.1	Component Cooling	-	47	-	-	-	-	-	7	54	-	-	54	-	-	-	-	-	-	1,374	-
2b.1.1.2	Component Cooling RCA	-	116	2	3	130	-	-	40	300	300	-	-	1,430	-	-	-	-	58,079	2,674	-
2b.1.1.3	Core Flood	-	109	8	11	147	50	-	64	389	389	-	-	1,611	261	-	-	-	88,248	2,706	-
2b.1.1.4	Electrical (Clean)	-	583	-	-	-	-	-	87	670	-	-	670	-	-	-	-	-	-	16,348	-
2b.1.1.5	Electrical (Contaminated)	-	193	-	13	93	74	-	82	450	450	-	-	910	376	-	-	-	70,714	4,751	-
2b.1.1.6	Electrical (Contaminated) RCA	-	1,194	20	35	1,381	-	-	513	3,144	3,144	-	-	15,179	-	-	-	-	816,430	28,393	-
2b.1.1.7	Gaseous Waste Disposal (shared 1&2)	-	355	41	45	87	304	-	189	1,022	1,022	-	-	958	1,669	-	-	-	178,507	8,642	-
2b.1.1.8	High Pressure Injection	-	893	239	314	1,156	2,012	-	870	5,584	5,584	-	-	12,713	10,304	-	-	-	1,439,297	22,837	-
2b.1.1.9	Incore Instrumentation	-	17	0	0	-	3	-	5	25	25	-	-	-	13	-	-	-	1,168	466	-
2b.1.1.10	Liquid Waste Disposal (Shared 1&2)	1,288	1,518	133	162	300	1,581	-	1,381	5,869	5,869	-	-	3,300	5,928	-	-	-	629,781	66,388	-
2b.1.1.11	Low Pressure Injection	-	518	58	85	518	506	-	352	2,037	2,037	-	-	5,697	2,772	-	-	-	483,289	13,232	-
2b.1.1.12	On-Site/Off-Site Power	-	94	-	-	-	-	-	14	106	-	-	106	-	-	-	-	-	-	2,517	-
2b.1.1.13	Purge	-	149	7	11	440	-	-	106	712	712	-	-	4,842	-	-	-	-	186,641	3,591	-
2b.1.1.14	RFS Refueling Water	-	45	4	4	29	25	-	23	129	129	-	-	314	127	-	-	-	24,148	1,070	-
2b.1.1.15	Radiation Instrument Alarm	-	11	-	-	-	-	-	2	13	-	-	13	-	-	-	-	-	-	323	-
2b.1.1.16	Radiation Instrument Alarm RCA	-	29	0	0	5	-	-	6	42	42	-	-	63	-	-	-	-	2,565	788	-
2b.1.1.17	Reactor Building Cooling	-	345	25	44	1,705	-	-	351	2,471	2,471	-	-	15,745	-	-	-	-	761,247	8,761	-
2b.1.1.18	Reactor Coolant	-	241	21	19	45	129	-	104	561	561	-	-	510	663	-	-	-	80,040	6,272	-
2b.1.1.19	Reactor Coolant Storage	435	497	54	71	221	459	-	506	2,243	2,243	-	-	2,430	2,696	-	-	-	309,234	21,804	-
2b.1.1.20	Ventilation (Clean)	-	172	-	-	-	-	-	26	198	-	-	198	-	-	-	-	-	-	5,298	-
2b.1.1.21	Ventilation (Contaminated)	-	583	16	28	808	50	-	285	1,769	1,769	-	-	8,878	255	-	-	-	383,438	13,303	-
2b.1.1.22	Ventilation (clean) RCA	-	242	7	12	448	-	-	130	838	838	-	-	4,925	-	-	-	-	200,000	4,619	-
2b.1.1	Totals	1,733	7,947	643	856	7,505	4,692	-	5,254	28,628	27,585	-	1,044	82,506	25,066	-	-	-	5,502,825	238,156	-
2b.1.2	Scaffolding in support of decommissioning	-	572	10	2	55	7	-	154	800	800	-	-	542	34	-	-	-	27,395	17,873	-
Decontamination of Site Buildings																					
2b.1.3.1	Reactor Building	770	860	182	271	424	971	-	865	4,443	4,443	-	-	4,658	10,890	-	-	-	941,440	37,959	-
2b.1.3.2	Auxiliary Building	315	180	49	73	57	103	-	253	1,028	1,028	-	-	629	2,849	-	-	-	221,767	11,651	-
2b.1.3.3	Turbine Building	209	24	5	8	-	11	-	115	372	372	-	-	-	314	-	-	-	21,708	6,005	-
2b.1.3	Totals	1,294	1,064	237	352	481	1,085	-	1,333	5,844	5,844	-	-	5,286	14,053	-	-	-	1,184,915	55,619	-
2b.1	Subtotal Period 2b Activity Costs	3,027	9,583	889	1,210	8,041	5,783	-	6,741	35,273	34,230	-	1,044	88,333	39,153	-	-	-	6,715,139	309,945	-
Period 2b Additional Costs																					
2b.2.1	Containment Paint Remediation	92	-	7	12	-	84	-	69	264	264	-	-	-	452	-	-	-	-	800	-
2b.2	Subtotal Period 2b Additional Costs	92	-	7	12	-	84	-	69	264	264	-	-	-	452	-	-	-	-	800	-
Period 2b Collateral Costs																					
2b.3.1	Process liquid waste	209	-	129	388	-	735	-	359	1,820	1,820	-	-	-	2,179	-	-	-	169,359	425	-
2b.3.2	Small tool allowance	-	215	-	-	-	-	-	32	247	247	-	-	-	-	-	-	-	-	-	-
2b.3.3	Spent Fuel Capital and Transfer	-	-	-	-	-	-	604	91	695	-	695	-	-	-	-	-	-	-	-	-
2b.3.4	Survey and Release of Scrap Metal	-	-	-	-	-	-	471	71	541	541	-	-	-	-	-	-	-	-	-	-
2b.3	Subtotal Period 2b Collateral Costs	209	215	129	388	-	735	1,075	553	3,303	2,908	695	-	-	2,179	-	-	-	169,359	425	-
Period 2b Period-Dependent Costs																					
2b.4.1	Decon supplies	785	-	-	-	-	-	-	196	982	982	-	-	-	-	-	-	-	-	-	-
2b.4.2	Insurance	-	-	-	-	-	-	658	66	724	724	-	-	-	-	-	-	-	-	-	-
2b.4.3	Property taxes	-	-	-	-	-	-	1,691	169	1,861	1,861	-	-	-	-	-	-	-	-	-	-
2b.4.4	Health physics supplies	-	2,182	-	-	-	-	-	545	2,727	2,727	-	-	-	-	-	-	-	-	-	-
2b.4.5	Heavy equipment rental	-	4,458	-	-	-	-	-	673	5,161	5,161	-	-	-	-	-	-	-	-	-	-
2b.4.6	Disposal of DAW generated	-	-	80	67	-	200	-	68	416	416	-	-	-	4,732	-	-	-	95,035	173	-

Table C-2  
Oconee Nuclear Station - Unit 2  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decom Cost	Removal Cost	Packaging Cost	Transport Cost	Off-Site Processing Cost	LLRW Disposal Cost	Other Cost	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu Feet	Class A Cu Feet	Burial Volumes Class B Cu Feet	GTCC Cu Feet	Burial/Processed Wt. Lbs.	Craft Major/Minor	Utility and Contractor Materials
Period 2b Period-Dependent Costs (continued)																				
2b.4.7	Plant energy budget	-	-	-	-	-	-	2,040	355	2,345	2,345	-	-	-	-	-	-	-	-	-
2b.4.8	NRC Fees	-	-	-	-	-	-	53	53	1,019	1,019	-	-	-	-	-	-	-	-	-
2b.4.9	Emergency Planning Fees	-	-	-	-	-	-	57	57	635	635	-	-	-	-	-	-	-	-	-
2b.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	1,832	283	1,752	1,752	-	-	-	-	-	-	-	-	-
2b.4.11	Liquid Effluent Processing Equipment/Services	-	-	-	-	-	-	388	568	443	443	-	-	-	-	-	-	-	-	-
2b.4.12	Indirect Overhead	-	-	-	-	-	-	9,784	568	4,352	4,352	-	-	-	-	-	-	-	-	-
2b.4.13	Security Staff Cost	-	-	-	-	-	-	1,177	1,354	1,354	1,354	-	-	-	-	-	-	-	-	-
2b.4.14	Utility Staff Cost	-	-	-	-	-	-	35,407	53,111	40,718	40,718	-	-	-	-	-	-	-	-	-
2b.4	Subtotal Period 2b Period-Dependent Costs	786	6,670	80	67	-	300	48,178	5,517	54,459	54,459	2,355	-	-	4,752	-	-	95,035	173	875,214
2b.0	TOTAL PERIOD 2b COST	4,113	4,458	1,106	1,677	8,041	6,802	49,253	15,882	103,342	99,205	3,081	1,044	68,333	48,535	-	-	6,979,539	311,043	578,214
PERIOD 2c - Delay before Wet Fuel Storage Decommissioning																				
Period 2c Direct Decommissioning Activities																				
Period 2c Collateral Costs																				
2c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	2,124	350	2,883	-	2,683	-	-	-	-	-	-	-	-
2c.3	Subtotal Period 2c Collateral Costs	-	-	-	-	-	-	2,124	350	2,683	-	2,683	-	-	-	-	-	-	-	-
Period 2c Period-Dependent Costs																				
2c.4.1	Insurance	-	-	-	-	-	-	2,350	226	2,481	-	2,481	-	-	-	-	-	-	-	-
2c.4.2	Property taxes	-	-	-	-	-	-	1,213	121	1,335	-	1,335	-	-	-	-	-	-	-	-
2c.4.3	Health physics supplies	-	653	-	-	-	-	-	163	816	-	816	-	-	-	-	-	-	-	-
2c.4.4	Disposal of DAW generated	-	-	14	12	-	34	-	52	372	-	72	-	-	818	-	-	16,356	30	-
2c.4.5	Plant energy budget	-	-	-	-	-	-	1,854	210	2,144	-	2,144	-	-	-	-	-	-	-	-
2c.4.6	NRC Fees	-	-	-	-	-	-	1,407	183	1,321	-	1,321	-	-	-	-	-	-	-	-
2c.4.7	Emergency Planning Fees	-	-	-	-	-	-	1,417	145	8,175	-	2,175	-	-	-	-	-	-	-	-
2c.4.8	Spent Fuel Pool O&M	-	-	-	-	-	-	8,144	145	6,000	-	6,006	-	-	-	-	-	-	-	-
2c.4.9	Indirect Overhead	-	-	-	-	-	-	8,817	773	2,089	-	2,089	-	-	-	-	-	-	-	-
2c.4.10	Security Staff Cost	-	-	-	-	-	-	9,245	1,387	18,636	-	10,938	-	-	-	-	-	-	-	-
2c.4.11	Utility Staff Cost	-	-	-	-	-	-	1,411	2,382	15,344	-	19,344	-	-	-	-	-	-	-	-
2c.4	Subtotal Period 2c Period-Dependent Costs	-	653	-	14	-	34	47,346	6,365	48,449	-	48,449	-	-	818	-	-	16,356	30	312,071
2c.0	TOTAL PERIOD 2c COST	-	653	14	12	-	34	43,979	4,539	51,131	-	51,131	-	-	818	-	-	16,356	30	615,625
PERIOD 2d - Decommissioning Following Wet Fuel Storage																				
Period 2d Direct Decommissioning Activities																				
2d.1.1	Remove spent fuel racks	314	22	122	68	-	414	-	307	1,322	1,322	-	-	-	2,450	-	-	219,904	955	-
Decommissioning of Plant Systems																				
2d.1.2.1	Spent Fuel Cooling	279	255	28	42	173	206	-	367	1,368	1,368	-	-	1,899	1,398	-	-	195,087	9,855	-
2d.1.2	Totals	279	255	28	42	173	206	-	367	1,368	1,368	-	-	1,899	1,398	-	-	195,087	9,855	-
Decommissioning of Site Buildings																				
2d.1.3.1	Fuel Building	302	228	5	8	83	13	-	145	711	711	-	-	315	227	-	-	53,024	10,113	-
2d.1.3	Totals	302	228	5	8	83	13	-	145	711	711	-	-	315	227	-	-	53,024	10,113	-
2d.1.4	Scaffolding in support of decommissioning	-	114	2	0	11	1	-	31	160	160	-	-	108	-	-	-	5,479	3,575	-
2d.1	Subtotal Period 2d Activity Costs	755	637	157	118	267	758	-	820	3,552	3,552	-	-	3,923	4,082	-	-	477,443	24,458	-
2d.0	TOTAL PERIOD 2d COST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Period 2d Additional Costs																				
2d.2.1	License Termination Survey Management Program	-	-	-	-	-	-	516	145	801	801	-	-	-	-	-	-	-	-	-
2d.2	Subtotal Period 2d Additional Costs	-	-	-	-	-	-	516	145	801	801	-	-	-	-	-	-	-	-	-



Table C-2

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site	LLRW	Other Costs	Total Contingency	Total Costs	NRC	Spent Fuel Management Costs	Site Restoration Costs	Processed	Class A Cu. Feet	Burial Volumes			GTCC Cu. Feet	Burial /	Craft Manhours	Utility and
						Processing Costs	Disposal Costs				Lic. Term. Costs			Volume Cu. Feet		Class B Cu. Feet	Class C Cu. Feet	Processed Wt. Lbs.		Contractor Manhours		
Period 2d Collateral Costs																						
2d.3.1	Process liquid waste	98	-	70	210	-	420	-	193	991	991	-	-	-	1,179	-	-	-	-	96,873	230	-
2d.3.2	Small tool allowance	-	23	-	-	-	-	-	3	27	27	-	-	-	-	-	-	-	-	-	-	-
2d.3.3	Decommissioning Equipment Disposition	-	-	109	29	626	73	-	124	940	940	-	-	6,000	373	-	-	-	-	303,507	98	-
2d.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	147	-	169	-	169	-	-	-	-	-	-	-	-	-	-
2d.3.5	Survey and Release of Scrap Metal	-	-	-	-	-	-	94	-	108	108	-	-	-	-	-	-	-	-	-	-	-
2d.3	Subtotal Period 2d Collateral Costs	98	23	179	240	805	493	241	357	2,236	2,067	169	-	6,000	1,552	-	-	-	-	400,380	318	-
Period 2d Period-Dependent Costs																						
2d.4.1	Decon supplies	62	-	-	-	-	-	-	16	77	77	-	-	-	-	-	-	-	-	-	-	-
2d.4.2	Insurance	-	-	-	-	-	-	189	17	186	186	-	-	-	-	-	-	-	-	-	-	-
2d.4.3	Property taxes	-	-	-	-	-	-	3	0	4	4	-	-	-	-	-	-	-	-	-	-	-
2d.4.4	Health physics supplies	-	305	-	-	-	-	-	76	381	381	-	-	-	-	-	-	-	-	-	-	-
2d.4.5	Heavy equipment rental	-	1,156	-	-	-	-	-	173	1,328	1,328	-	-	-	-	-	-	-	-	-	-	-
2d.4.6	Disposal of DAW generated	-	-	14	12	-	38	-	12	74	74	-	-	-	845	-	-	-	-	16,906	31	-
2d.4.7	Plant energy budget	-	-	-	-	-	-	280	42	322	322	-	-	-	-	-	-	-	-	-	-	-
2d.4.8	NRC Fees	-	-	-	-	-	-	238	24	262	262	-	-	-	-	-	-	-	-	-	-	-
2d.4.9	Emergency Planning Fees	-	-	-	-	-	-	149	15	163	-	163	-	-	-	-	-	-	-	-	-	-
2d.4.10	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	198	30	228	228	-	-	-	-	-	-	-	-	-	-	-
2d.4.11	Indirect Overhead	-	-	-	-	-	-	604	91	695	695	-	-	-	-	-	-	-	-	-	-	-
2d.4.12	Security Staff Cost	-	-	-	-	-	-	86	13	98	98	-	-	-	3,305	-	-	-	-	-	-	3,305
2d.4.13	Utility Staff Cost	-	-	-	-	-	-	5,601	840	6,441	6,441	-	-	-	-	-	-	-	-	-	-	100,911
2d.4	Subtotal Period 2d Period-Dependent Costs	62	1,460	14	12	-	36	7,329	1,348	10,261	10,067	163	-	-	845	-	-	-	-	16,906	31	104,220
2d.0	TOTAL PERIOD 2d COST	955	2,121	350	369	812	1,267	8,186	2,710	10,849	16,517	332	-	8,923	6,479	-	-	-	-	894,728	24,847	110,460
PERIOD 2e - License Termination																						
Period 2e Direct Decommissioning Activities																						
2e.1.1	ORISE confirmatory survey	-	-	-	-	-	-	150	45	195	195	-	-	-	-	-	-	-	-	-	-	-
2e.1.2	Terminate license	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2e.1	Subtotal Period 2e Activity Costs	-	-	-	-	-	-	150	45	195	195	-	-	-	-	-	-	-	-	-	-	-
Period 2e Additional Costs																						
2e.2.1	License Termination Survey	-	-	-	-	-	-	5,264	1,579	6,844	6,844	-	-	-	-	-	-	-	-	-	131,203	3,120
2e.2	Subtotal Period 2e Additional Costs	-	-	-	-	-	-	5,264	1,579	6,844	6,844	-	-	-	-	-	-	-	-	-	131,203	3,120
Period 2e Collateral Costs																						
2e.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	37	6	43	-	43	-	-	-	-	-	-	-	-	-	-
2e.3	Subtotal Period 2e Collateral Costs	-	-	-	-	-	-	37	6	43	-	43	-	-	-	-	-	-	-	-	-	-
Period 2e Period-Dependent Costs																						
2e.4.1	Insurance	-	-	-	-	-	-	217	22	239	239	-	-	-	-	-	-	-	-	-	-	-
2e.4.2	Property taxes	-	-	-	-	-	-	5	0	5	5	-	-	-	-	-	-	-	-	-	-	-
2e.4.3	Health physics supplies	-	816	-	-	-	-	-	204	1,020	1,020	-	-	-	-	-	-	-	-	-	-	-
2e.4.4	Disposal of DAW generated	-	-	5	4	-	13	-	5	28	28	-	-	-	315	-	-	-	-	6,299	11	-
2e.4.5	Plant energy budget	-	-	-	-	-	-	199	30	229	229	-	-	-	-	-	-	-	-	-	-	-
2e.4.6	NRC Fees	-	-	-	-	-	-	355	35	390	390	-	-	-	-	-	-	-	-	-	-	-
2e.4.7	Emergency Planning Fees	-	-	-	-	-	-	25	3	28	-	28	-	-	-	-	-	-	-	-	-	-
2e.4.8	Indirect Overhead	-	-	-	-	-	-	414	62	476	476	-	-	-	-	-	-	-	-	-	-	-
2e.4.9	Security Staff Cost	-	-	-	-	-	-	122	16	140	140	-	-	-	-	-	-	-	-	-	-	4,714
2e.4.10	Utility Staff Cost	-	-	-	-	-	-	4,060	509	4,669	4,669	-	-	-	-	-	-	-	-	-	-	69,143
2e.4	Subtotal Period 2e Period-Dependent Costs	-	816	5	4	-	13	5,397	988	7,224	7,197	28	-	-	315	-	-	-	-	6,299	11	73,857
2e.0	TOTAL PERIOD 2e COST	-	816	5	4	-	13	10,849	2,616	14,305	14,235	70	-	-	315	-	-	-	-	6,299	131,215	76,977
PERIOD 2 TOTALS		9,932	39,939	10,421	5,243	17,479	53,979	149,881	60,807	343,682	283,601	56,342	3,740	885,564	111,189	3,125	517	-	-	18,137,360	733,537	2,003,115

Table C-2  
Oconee Nuclear Station - Unit 2  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
PERIOD 3b - Site Restoration																					
Period 3b Direct Decommissioning Activities																					
Demolition of Remaining Site Buildings																					
3b.1.1.1	Reactor Building	-	4,114	-	-	-	-	-	517	4,731	-	-	4,731	-	-	-	-	-	-	53,465	-
3b.1.1.2	Auxiliary Building	-	830	-	-	-	-	-	124	950	-	-	950	-	-	-	-	-	-	12,013	-
3b.1.1.3	Turbine Building	-	1,525	-	-	-	-	-	229	1,755	-	-	1,755	-	-	-	-	-	-	27,589	-
3b.1.1.4	Turbine Pedestal	-	407	-	-	-	-	-	61	468	-	-	468	-	-	-	-	-	-	4,881	-
3b.1.1.5	Fuel Building	-	648	-	-	-	-	-	97	745	-	-	745	-	-	-	-	-	-	8,163	-
3b.1.1	Totals	-	7,520	-	-	-	-	-	1,128	8,649	-	-	8,649	-	-	-	-	-	-	107,510	-
Site Closeout Activities																					
3b.1.2	Grade & landscape site	-	95	-	-	-	-	-	13	99	-	-	99	-	-	-	-	-	-	191	-
3b.1.3	Final report to NRC	-	-	-	-	-	-	46	7	52	52	-	-	-	-	-	-	-	-	-	668
3b.1	Subtotal Period 3b Activity Costs	-	7,608	-	-	-	-	46	1,148	8,799	52	-	8,747	-	-	-	-	-	-	107,702	668
Period 3b Additional Costs																					
3b.2.1	Concrete Crushing	-	267	-	-	-	-	2	40	309	-	-	309	-	-	-	-	-	-	1,359	-
3b.2	Subtotal Period 3b Additional Costs	-	267	-	-	-	-	2	40	309	-	-	309	-	-	-	-	-	-	1,359	-
Period 3b Collateral Costs																					
3b.3.1	Small tool allowance	-	78	-	-	-	-	-	12	89	-	-	89	-	-	-	-	-	-	-	-
3b.3.2	Spent Fuel Capital and Transfer	-	-	-	-	-	-	159	24	183	-	183	-	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	-	78	-	-	-	-	159	36	273	-	183	89	-	-	-	-	-	-	-	-
Period 3b Period-Dependent Costs																					
3b.4.1	Insurance	-	-	-	-	-	-	668	67	735	0	561	73	-	-	-	-	-	-	-	-
3b.4.2	Property taxes	-	-	-	-	-	-	15	2	17	-	-	17	-	-	-	-	-	-	-	-
3b.4.3	Heavy equipment rental	-	6,792	-	-	-	-	-	1,019	7,811	-	-	7,811	-	-	-	-	-	-	-	-
3b.4.4	Plant energy budget	-	-	-	-	-	-	307	46	353	-	318	35	-	-	-	-	-	-	-	-
3b.4.5	Emergency Planning Fees	-	-	-	-	-	-	77	8	85	-	85	-	-	-	-	-	-	-	-	-
3b.4.6	Indirect Overhead	-	-	-	-	-	-	739	111	850	850	-	-	-	-	-	-	-	-	-	-
3b.4.7	Security Staff Cost	-	-	-	-	-	-	160	24	184	0	129	55	-	-	-	-	-	-	-	8,050
3b.4.8	Utility Staff Cost	-	-	-	-	-	-	6,888	1,033	7,921	0	7,129	792	-	-	-	-	-	-	-	123,420
3b.4	Subtotal Period 3b Period-Dependent Costs	-	6,792	-	-	-	-	8,854	2,309	17,955	850	8,322	8,783	-	-	-	-	-	-	-	129,470
3b.0	TOTAL PERIOD 3b COST	-	14,743	-	-	-	-	9,060	3,532	27,396	902	8,505	17,929	-	-	-	-	-	-	109,061	130,138
PERIOD 3d - GTCC shipping																					
Period 3d Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
3d.1.1.1	Vessel & Internals GTCC Disposal	-	-	-	-	-	9,749	-	1,462	11,212	11,212	-	-	-	-	-	-	440	79,646	-	-
3d.1.1	Totals	-	-	-	-	-	9,749	-	1,462	11,212	11,212	-	-	-	-	-	-	440	79,646	-	-
3d.1	Subtotal Period 3d Activity Costs	-	-	-	-	-	9,749	-	1,462	11,212	11,212	-	-	-	-	-	-	440	79,646	-	-
3d.0	TOTAL PERIOD 3d COST	-	-	-	-	-	9,749	-	1,462	11,212	11,212	-	-	-	-	-	-	440	79,646	-	-
PERIOD 3 TOTALS																					
		-	14,743	-	-	-	9,749	9,060	4,995	38,548	12,113	8,505	17,929	-	-	-	-	440	79,646	109,061	130,138
TOTAL COST TO DECOMMISSION		8,787	60,001	10,494	5,710	17,479	68,303	218,554	77,717	467,045	377,426	67,581	22,027	185,584	137,730	3,887	517	440	18,661,720	887,500	2,830,338

Table C-2  
Oconee Nuclear Station - Unit 2  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial /		Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Processed Wt., Lbs.	Craft Manhours	

TOTAL COST TO DECOMMISSION WITH 19.96% CONTINGENCY:	\$467,045	thousands of 2008 dollars
TOTAL NRC LICENSE TERMINATION COST IS 80.8% OR:	\$377,426	thousands of 2008 dollars
SPENT FUEL MANAGEMENT COST IS 14.5% OR:	\$67,591	thousands of 2008 dollars
NON-NUCLEAR DEMOLITION COST IS 4.7% OR:	\$22,027	thousands of 2008 dollars
TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC)	142,133	cubic feet
TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED:	440	cubic feet
TOTAL SCRAP METAL REMOVED:	43,942	tons
TOTAL CRAFT LABOR REQUIREMENTS:	887,500	man-hours

End Notes  
n/a - indicates that this activity not charged as decommissioning expense  
a - indicates that this activity performed by decommissioning staff  
0 - indicates that this value is less than 0.5 but is non-zero  
a cell containing " - " indicates a zero value

Table C-3  
Oconee Nuclear Station - Unit 3  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decom Cost	Remediation Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Connected Costs	Total Costs	NRC Lit. Tolls Costs	Spent Fuel Mitigation/Fmt Costs	Site Restoration Costs	Processed Volume Cu. Ft.	Burnable Volumes				Burnable Processed Wt., Lbs.	Contract Materials	Utility and Contract Materials
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	Class D Cu. Feet			
PERIOD 1a - Shutdown through Final																					
Period 1a Direct Decommissioning Activities																					
1a.1.1	Prepare preliminary decommissioning cost	-	-	-	-	-	-	38	5	43	-	-	-	-	-	-	-	-	-	-	556
1a.1.2	Notification of Cessation of Operations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1a.1.3	Remove fuel & source material	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1a.1.4	Notification of Permanent Defueling	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1a.1.5	Deactivate plant systems & process waste	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1a.1.6	Prepare and submit PSDAR	-	-	-	-	-	-	50	9	59	-	-	-	-	-	-	-	-	-	-	958
1a.1.7	Review plant dwgs & specs	-	-	-	-	-	-	133	20	153	-	-	-	-	-	-	-	-	-	-	1,969
1a.1.8	Perform detailed rad survey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1a.1.9	Estimate by-product inventory	-	-	-	-	-	-	-	4	4	-	-	-	-	-	-	-	-	-	-	425
1a.1.10	End product description	-	-	-	-	-	-	29	4	33	-	-	-	-	-	-	-	-	-	-	428
1a.1.11	Detailed by-product inventory	-	-	-	-	-	-	-	5	5	-	-	-	-	-	-	-	-	-	-	556
1a.1.12	Define major work sequence	-	-	-	-	-	-	217	33	250	-	-	-	-	-	-	-	-	-	-	3,210
1a.1.13	Perform SER and EA	-	-	-	-	-	-	50	11	61	-	-	-	-	-	-	-	-	-	-	1,227
1a.1.14	Perform Site-Specific Cost Study	-	-	-	-	-	-	135	22	157	-	-	-	-	-	-	-	-	-	-	2,140
1a.1.15	Prepare/submit License Termination Plan	-	-	-	-	-	-	119	18	137	-	-	-	-	-	-	-	-	-	-	1,511
1a.1.16	Receive NRC approval of termination plan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Activity Specifications																					
1a.1.17.1	Plant & temporary facilities	-	-	-	-	-	-	172	21	193	-	-	-	-	-	-	-	-	-	-	2,106
1a.1.17.2	Plant utilities	-	-	-	-	-	-	121	18	139	-	-	-	-	-	-	-	-	-	-	1,789
1a.1.17.3	NSRS Decontamination Flush	-	-	-	-	-	-	4	2	6	-	-	-	-	-	-	-	-	-	-	14
1a.1.17.4	Radwaste internal	-	-	-	-	-	-	206	11	217	-	-	-	-	-	-	-	-	-	-	1,016
1a.1.17.5	Radwaste vessel	-	-	-	-	-	-	188	28	216	-	-	-	-	-	-	-	-	-	-	2,782
1a.1.17.6	Radwaste storage	-	-	-	-	-	-	191	2	193	-	-	-	-	-	-	-	-	-	-	2,782
1a.1.17.7	Steam generators	-	-	-	-	-	-	90	18	108	-	-	-	-	-	-	-	-	-	-	1,335
1a.1.17.8	Refractorium (w/ins)	-	-	-	-	-	-	15	7	22	-	-	-	-	-	-	-	-	-	-	685
1a.1.17.9	Van Tubs	-	-	-	-	-	-	12	2	14	-	-	-	-	-	-	-	-	-	-	171
1a.1.17.10	Van Swimmers	-	-	-	-	-	-	12	2	14	-	-	-	-	-	-	-	-	-	-	171
1a.1.17.11	Plant buildings	-	-	-	-	-	-	64	11	75	-	-	-	-	-	-	-	-	-	-	1,335
1a.1.17.12	Waste handling	-	-	-	-	-	-	191	20	211	-	-	-	-	-	-	-	-	-	-	1,969
1a.1.17.13	Electrical materials	-	-	-	-	-	-	11	4	15	-	-	-	-	-	-	-	-	-	-	161
1a.1.17.14	Materials	-	-	-	-	-	-	1,095	164	1,259	-	-	-	-	-	-	-	-	-	-	16,190
Shoring & Site Preparations																					
1a.1.18	Prepare dismantling sequence	-	-	-	-	-	-	69	10	79	-	-	-	-	-	-	-	-	-	-	1,025
1a.1.19	Plant prep & temp. svcs	-	-	-	-	-	-	2,700	195	2,895	-	-	-	-	-	-	-	-	-	-	-
1a.1.20	Design water clean-up system	-	-	-	-	-	-	41	6	47	-	-	-	-	-	-	-	-	-	-	599
1a.1.21	Rigging/Cont. Cntrl Environments/etc.	-	-	-	-	-	-	2,102	115	2,217	-	-	-	-	-	-	-	-	-	-	-
1a.1.22	Procure casks/liners & containers	-	-	-	-	-	-	36	5	41	-	-	-	-	-	-	-	-	-	-	526
1a.1.23	Subtotal Period 1a Activity Costs	-	-	-	-	-	-	6,935	1,840	8,775	-	-	-	-	-	-	-	-	-	-	31,566
Period 1a Additional Costs																					
1a.2.1	Asbestos Remediation	-	2,759	1	283	-	3,154	-	3,779	3,154	6,481	-	-	-	-	-	-	-	3,154	35,451	-
1a.2	Subtotal Period 1a Additional Costs	-	2,759	1	283	-	3,154	-	3,779	3,154	6,481	-	-	-	-	-	-	-	3,154	35,451	-
Period 1a Collateral Costs																					
1a.3.1	Small tool allowance	-	42	-	-	-	-	-	42	42	-	-	-	-	-	-	-	-	-	-	-
1a.3.2	Spent Fuel Capital and Transfer	-	-	-	-	-	-	735	110	845	-	-	-	-	-	-	-	-	-	-	-
1a.3	Subtotal Period 1a Collateral Costs	-	42	-	-	-	-	735	152	887	-	-	-	-	-	-	-	-	-	-	-
Period 1a Period-Dependent Costs																					
1a.4.1	Insurance	-	-	-	-	-	-	775	77	852	-	-	-	-	-	-	-	-	-	-	-
1a.4.2	Property taxes	-	-	-	-	-	-	2,001	201	2,202	-	-	-	-	-	-	-	-	-	-	-

Table C-3  
Oconee Nuclear Station - Unit 3  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 1a Period-Dependent Costs (continued)																					
1a.4.3	Health physics supplies	-	585	-	-	-	-	-	147	733	733	-	-	-	-	-	-	-	-	-	-
1a.4.4	Heavy equipment rental	-	458	-	-	-	-	-	99	526	526	-	-	-	-	-	-	-	-	-	-
1a.4.5	Disposal of DAW generated	-	-	-	8	-	24	-	8	50	50	-	-	-	571	-	-	-	11,419	21	-
1a.4.6	Plant energy budget	-	-	-	-	-	-	1,324	199	1,522	1,522	-	-	-	-	-	-	-	-	-	-
1a.4.7	NRC Fees	-	-	-	-	-	-	471	47	518	518	-	-	-	-	-	-	-	-	-	-
1a.4.8	Emergency Planning Fees	-	-	-	-	-	-	281	28	309	-	309	-	-	-	-	-	-	-	-	-
1a.4.9	FEMA Fees	-	-	-	-	-	-	126	19	145	145	-	-	-	-	-	-	-	-	-	-
1a.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	745	112	857	-	857	-	-	-	-	-	-	-	-	-
1a.4.11	ISFSI Operating Costs	-	-	-	-	-	-	109	16	125	-	125	-	-	-	-	-	-	-	-	-
1a.4.12	Indirect Overhead	-	-	-	-	-	-	2,135	320	2,455	2,455	-	-	-	-	-	-	-	-	-	-
1a.4.13	Security Staff Cost	-	-	-	-	-	-	4,566	685	5,251	5,251	-	-	-	-	-	-	-	-	-	157,471
1a.4.14	Utility Staff Cost	-	-	-	-	-	-	19,239	2,896	22,125	22,125	-	-	-	-	-	-	-	-	-	356,667
1a.4	Subtotal Period 1a Period-Dependent Costs	-	1,044	10	8	-	24	31,780	4,814	37,680	36,388	1,292	-	-	571	-	-	-	11,419	21	514,129
1a.0	TOTAL PERIOD 1a COST	-	5,845	11	291	-	2,188	39,451	7,244	63,029	\$0,742	2,137	150	-	26,026	-	-	-	342,934	35,472	545,695
PERIOD 1b - Decommissioning Preparations																					
Period 1b Direct Decommissioning Activities																					
Detailed Work Procedures																					
1b.1.1.1	Plant systems	-	-	-	-	-	-	137	21	158	142	-	16	-	-	-	-	-	-	-	3,026
1b.1.1.2	NSSS Decontamination Flush	-	-	-	-	-	-	29	4	33	33	-	-	-	-	-	-	-	-	-	428
1b.1.1.3	Reactor internals	-	-	-	-	-	-	72	11	83	83	-	-	-	-	-	-	-	-	-	1,070
1b.1.1.4	Remaining buildings	-	-	-	-	-	-	39	6	45	11	-	34	-	-	-	-	-	-	-	578
1b.1.1.5	CRD cooling assembly	-	-	-	-	-	-	29	4	33	33	-	-	-	-	-	-	-	-	-	428
1b.1.1.6	CRD housings & ICI tubes	-	-	-	-	-	-	29	4	33	33	-	-	-	-	-	-	-	-	-	428
1b.1.1.7	Incore instrumentation	-	-	-	-	-	-	29	4	33	33	-	-	-	-	-	-	-	-	-	428
1b.1.1.8	Reactor vessel	-	-	-	-	-	-	105	16	121	121	-	-	-	-	-	-	-	-	-	1,554
1b.1.1.9	Facility closeout	-	-	-	-	-	-	35	5	40	20	-	20	-	-	-	-	-	-	-	514
1b.1.1.10	Missile shields	-	-	-	-	-	-	13	2	15	15	-	-	-	-	-	-	-	-	-	193
1b.1.1.11	Biological shield	-	-	-	-	-	-	35	5	40	40	-	-	-	-	-	-	-	-	-	514
1b.1.1.12	Steam generators	-	-	-	-	-	-	133	20	153	153	-	-	-	-	-	-	-	-	-	1,969
1b.1.1.13	Reinforced concrete	-	-	-	-	-	-	29	4	33	17	-	17	-	-	-	-	-	-	-	429
1b.1.1.14	Main Turbine	-	-	-	-	-	-	45	7	52	-	-	52	-	-	-	-	-	-	-	668
1b.1.1.15	Main Condensers	-	-	-	-	-	-	45	7	52	-	-	52	-	-	-	-	-	-	-	668
1b.1.1.16	Auxiliary building	-	-	-	-	-	-	79	12	91	82	-	6	-	-	-	-	-	-	-	1,168
1b.1.1.17	Reactor building	-	-	-	-	-	-	79	12	91	82	-	6	-	-	-	-	-	-	-	1,168
1b.1.1	Total	-	-	-	-	-	-	962	144	1,107	898	-	208	-	-	-	-	-	-	-	14,228
1b.1.2	Decon primary loop	515	-	-	-	-	-	-	258	773	773	-	-	-	-	-	-	-	-	1,067	-
1b.1	Subtotal Period 1b Activity Costs	515	-	-	-	-	-	962	402	1,880	1,671	-	208	-	-	-	-	-	-	1,067	14,228
Period 1b Additional Costs																					
1b.2.1	Spent Fuel Pool Isolation	-	-	-	-	-	-	5,272	941	7,212	7,212	-	-	-	-	-	-	-	-	-	-
1b.2.2	Site Characterization Survey	-	-	-	-	-	-	1,252	376	1,628	1,628	-	-	-	-	-	-	-	-	8,167	3,357
1b.2	Subtotal Period 1b Additional Costs	-	-	-	-	-	-	7,524	1,316	8,840	8,840	-	-	-	-	-	-	-	-	8,167	3,357
Period 1b Collateral Costs																					
1b.3.1	Decon equipment	883	-	-	-	-	-	-	132	1,016	1,016	-	-	-	-	-	-	-	-	-	-
1b.3.2	Process liquid waste	29	-	58	171	-	2,373	-	639	3,268	3,268	-	-	-	188	762	-	-	95,826	185	-
1b.3.3	Small tool allowance	-	1	-	-	-	-	-	0	1	1	-	-	-	-	-	-	-	-	-	-
1b.3.4	Pipe cutting equipment	-	1,000	-	-	-	-	-	150	1,150	1,150	-	-	-	-	-	-	-	-	-	-
1b.3.5	Decon rig	1,400	-	-	-	-	-	-	210	1,610	1,610	-	-	-	-	-	-	-	-	-	-
1b.3.6	Spent Fuel Capital and Transfer	-	-	-	-	-	-	152	23	174	-	174	-	-	-	-	-	-	-	-	-



Table C-3  
Oconee Nuclear Station - Unit 3  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Initial Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLNW Disposal Costs	Other Costs	Fuel Contribution	Initial Costs	NRC License Fees	Spent Fuel Management Costs	Site Restoration Costs	Projected Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	BUFILE / Processed WLLBs	Craft Manhours	Utility and Contractor Manhours
1b.3	Subtotal Period 1b Collateral Costs	2,312	1,501	58	171	-	2,312	152	1,155	7,124	8046	174	-	-	100	162	-	-	5,528	185	-
Period 1b	Period 1b Collateral Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1b.4.1	Decon supplies	11	-	-	-	-	-	-	7	11	14	-	-	-	-	-	-	-	-	-	-
1b.4.2	Insurance	-	-	-	-	-	-	111	31	142	112	-	-	-	-	-	-	-	-	-	-
1b.4.3	Property taxes	-	-	-	-	-	-	51	5	56	51	-	-	-	-	-	-	-	-	-	-
1b.4.4	Health Physics Monitor	-	240	-	-	-	-	-	80	102	102	-	-	-	-	-	-	-	-	-	-
1b.4.5	Heavy equipment rental	-	232	-	-	-	-	-	05	237	261	-	-	-	-	-	-	-	-	-	-
1b.4.6	Disposal site management	-	-	0	5	-	-	-	3	31	29	-	-	-	2021	-	-	-	6,551	12	-
1b.4.7	Plant energy budget	-	-	-	-	-	-	1,102	1,102	1,543	1,543	-	-	-	-	-	-	-	-	-	-
1b.4.8	NRS Fee	-	-	-	-	-	-	239	24	261	285	-	-	-	-	-	-	-	-	-	-
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	142	11	153	153	151	-	-	-	-	-	-	-	-	-
1b.4.10	EMF Fees	-	-	-	-	-	-	-	8	71	71	-	-	-	-	-	-	-	-	-	-
1b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	31	31	35	35	435	-	-	-	-	-	-	-	-	-
1b.4.12	ISPS Operating Costs	-	-	-	-	-	-	35	196	24	24	64	-	-	-	-	-	-	-	-	-
1b.4.13	Indirect Overhead	-	-	-	-	-	-	1,323	347	1,670	1,521	-	-	-	-	-	-	-	-	-	-
1b.4.14	Sitewide Cleanup	-	-	-	-	-	-	1,323	347	1,670	1,521	-	-	-	-	-	-	-	-	-	-
1b.4.15	Utility S&M Cost	-	-	-	-	-	-	1,323	347	1,670	1,521	-	-	-	-	-	-	-	-	-	-
1b.4	Subtotal Period 1b Collateral Costs	2,312	1,472	6	5	-	14	1,472	1,155	7,124	8,046	174	-	-	100	162	-	-	6,551	12	-
1b.5	TOTAL PERIOD 1b-COST	2,312	1,472	62	176	-	2,312	2,710	5,438	39,758	34,712	829	100	-	100	162	-	-	1,117	84	3,151
PERIOD 1 TOTALS		2,312	1,472	62	176	-	2,312	2,710	5,438	39,758	34,712	829	100	-	100	162	-	-	1,117	84	3,151
Period 2a	Period 2a Large Component Removal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Period 2a	Period 2a Direct Decommissioning Activities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.1.1	Reactor Building System Removal	158	158	15	39	-	158	-	158	798	11	-	-	-	-	-	-	-	1,000	103	-
2a.1.2	Pressurizer Fuel Tank	11	11	1	7	-	11	-	23	154	10	-	-	-	-	-	-	-	20,000	612	-
2a.1.3	Reactor Coolant Pump Motors	113	113	40	27	113	113	-	199	3,680	2,680	-	-	491	1,997	-	-	-	102,488	4,506	-
2a.1.4	Pressure Vessel	113	113	134	-	113	113	-	1,177	2,935	1,935	-	-	-	1,865	-	-	-	107,604	2,061	-
2a.1.5	Steam Generators	113	1,607	1,607	751	113	1,288	-	3,511	10,781	16,191	-	-	-	12,665	-	-	-	1,100,000	12,515	1,157
2a.1.6	Reactor Building Structure	113	1,607	1,607	751	113	1,288	-	3,511	10,781	16,191	-	-	-	12,665	-	-	-	1,100,000	12,515	1,157
2a.1.7	Reactor Building Structure	113	1,607	1,607	751	113	1,288	-	3,511	10,781	16,191	-	-	-	12,665	-	-	-	1,100,000	12,515	1,157
2a.1.8	Reactor Vessel	113	1,607	1,607	751	113	1,288	-	3,511	10,781	16,191	-	-	-	12,665	-	-	-	1,100,000	12,515	1,157
2a.1.9	Reactor Vessel	113	1,607	1,607	751	113	1,288	-	3,511	10,781	16,191	-	-	-	12,665	-	-	-	1,100,000	12,515	1,157
2a.1.10	Totals	158	1,607	1,607	751	113	1,288	-	3,511	10,781	16,191	-	-	-	12,665	-	-	-	1,100,000	12,515	1,157
2a.2	Reactor Building Structure	113	1,607	1,607	751	113	1,288	-	3,511	10,781	16,191	-	-	-	12,665	-	-	-	1,100,000	12,515	1,157
2a.2.1	Main Turbine/Generator	-	308	289	19	727	304	-	372	1,000	1,000	-	-	7,819	2,127	-	-	-	5,542	7,674	-
2a.2.2	Main Condensers	-	111	111	61	509	111	-	398	2,283	2,283	-	-	5,044	1,487	-	-	-	1,100,000	1,153	-
2a.3	Reactor Building Demolition	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.3.1	Reactor Building	-	730	-	-	-	-	-	1,000	1,000	1,000	-	-	-	-	-	-	-	-	1,000	-
2a.3.2	Reactor Building	-	730	-	-	-	-	-	1,000	1,000	1,000	-	-	-	-	-	-	-	-	1,000	-
2a.3.3	Reactor Building	-	730	-	-	-	-	-	1,000	1,000	1,000	-	-	-	-	-	-	-	-	1,000	-
2a.3.4	Reactor Building	-	730	-	-	-	-	-	1,000	1,000	1,000	-	-	-	-	-	-	-	-	1,000	-
2a.3.5	Reactor Building	-	730	-	-	-	-	-	1,000	1,000	1,000	-	-	-	-	-	-	-	-	1,000	-
2a.3.6	Reactor Building	-	730	-	-	-	-	-	1,000	1,000	1,000	-	-	-	-	-	-	-	-	1,000	-
2a.3.7	Reactor Building	-	730	-	-	-	-	-	1,000	1,000	1,000	-	-	-	-	-	-	-	-	1,000	-
2a.3.8	Reactor Building	-	730	-	-	-	-	-	1,000	1,000	1,000	-	-	-	-	-	-	-	-	1,000	-
2a.3.9	Reactor Building	-	730	-	-	-	-	-	1,000	1,000	1,000	-	-	-	-	-	-	-	-	1,000	-
2a.3.10	Totals	-	730	-	-	-	-	-	1,000	1,000	1,000	-	-	-	-	-	-	-	-	1,000	-

Table C-3  
Oconee Nuclear Station- Unit 3  
NECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Product Seed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	Glac Cu. Feet	Proces. Out. Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
2a.1.5.1	Auxiliary Steam (shared)	-	270	-	-	-	-	-	10	270	-	-	10	-	-	-	-	-	-	840	-
2a.1.5.2	Auxiliary Steam (shared) RCA	-	10	-	-	-	-	-	1	10	26	-	-	1242	-	-	-	-	30422	2371	-
2a.1.5.3	CMCin (shared)	-	-	-	-	-	-	-	1	1	-	-	5	-	-	-	-	-	130	-	-
2a.1.5.4	Chemical Addition (shared) RCA	-	10	0	0	-	-	-	5	15	29	-	-	12	-	-	-	-	5337	170	-
2a.1.5.5	Chemical Addition	-	27	-	-	-	-	-	4	31	-	-	21	-	-	-	-	-	-	871	-
2a.1.5.6	Chemical Addition RCA	-	27	0	1	-	-	-	5	32	52	-	-	222	-	-	-	-	9016	501	-
2a.1.5.7	Chilled Water (shared) RCA	-	114	-	-	-	-	-	24	138	-	-	-	-	-	-	-	-	-	01175	-
2a.1.5.8	Condensate (Contaminated)	-	52	-	-	-	-	-	78	130	-	-	54	-	-	-	-	-	-	15699	-
2a.1.5.9	Condensate (Contaminated) RCA	-	10	29	-	-	-	-	580	619	405	-	-	10	-	-	-	-	123881	5471	-
2a.1.5.10	Condensate Circulating Water	-	338	-	-	-	-	-	12	350	-	-	10	-	-	-	-	-	-	10040	-
2a.1.5.11	Demineralized Water (shared)	-	134	-	-	-	-	-	24	158	-	-	154	-	-	-	-	-	-	4267	-
2a.1.5.12	Demineralized Water (shared) RCA	-	78	1	-	-	-	-	10	89	30	-	-	808	-	-	-	-	1815	1782	-
2a.1.5.13	Diesel Air (shared)	-	43	-	-	-	-	-	6	49	-	-	49	-	-	-	-	-	-	1367	-
2a.1.5.14	Diesel Jacket Water (shared)	-	3	-	-	-	-	-	0	3	-	-	4	-	-	-	-	-	-	86	-
2a.1.5.15	Diesel Lube Oil (shared)	-	11	-	-	-	-	-	2	13	-	-	13	-	-	-	-	-	-	346	-
2a.1.5.16	Electro Hydraulic Turbine Control	-	18	-	-	-	-	-	3	20	-	-	20	-	-	-	-	-	-	401	-
2a.1.5.17	Equipment Cooling (shared)	-	88	-	-	-	-	-	13	102	-	-	102	-	-	-	-	-	-	728	-
2a.1.5.18	Essential Siphon Vacuum (shared)	-	85	-	-	-	-	-	13	97	-	-	97	-	-	-	-	-	-	2549	-
2a.1.5.19	Feedwater & Emergency Feedwater	-	63	-	-	-	-	-	21	84	-	-	102	-	-	-	-	-	-	4852	-
2a.1.5.20	Feedwater & Emergency Feedwater (Cont.)	-	172	6	1	-	-	-	112	291	104	-	-	1873	-	-	-	-	197906	1147	-
2a.1.5.21	Feedwater & Emergency Feedwater RCA	-	27	0	1	-	-	-	12	30	820	-	-	1815	-	-	-	-	195560	5531	-
2a.1.5.22	Filtered Water (shared)	-	8	-	-	-	-	-	15	23	-	-	13	-	-	-	-	-	-	2925	-
2a.1.5.23	Filtered Water (shared) RCA	-	12	1	2	-	-	-	32	47	96	-	-	915	-	-	-	-	31591	1652	-
2a.1.5.24	Heater Drains	-	14	1	7	-	-	-	953	1005	6142	-	-	41405	-	-	-	-	1011001	12103	-
2a.1.5.25	Heater Drains (Cont.)	-	11	-	-	-	-	-	12	23	-	-	23	-	-	-	-	-	-	2239	-
2a.1.5.26	Heater Drains (Cont.)	-	21	-	-	-	-	-	1	22	-	-	22	-	-	-	-	-	-	1002	-
2a.1.5.27	High Pressure Extraction	-	14	-	-	-	-	-	1	15	-	-	15	-	-	-	-	-	-	122	-
2a.1.5.28	High Pressure Extraction (Cont.)	-	1	-	-	-	-	-	15	16	-	-	16	-	-	-	-	-	-	10116	-
2a.1.5.29	High Pressure Extraction (Cont.)	-	2	-	-	-	-	-	9	11	-	-	11	-	-	-	-	-	-	75	-
2a.1.5.30	Hydrogen	-	11	-	-	-	-	-	4	15	-	-	15	-	-	-	-	-	-	100	-
2a.1.5.31	Hydrogen Seal Oil	-	29	-	-	-	-	-	1	30	-	-	30	-	-	-	-	-	-	159	-
2a.1.5.32	Hydrogen Seal Oil (Cont.)	-	1	-	-	-	-	-	1	2	-	-	2	-	-	-	-	-	-	153	-
2a.1.5.33	Low Pressure Extraction	-	11	-	-	-	-	-	3	14	-	-	14	-	-	-	-	-	-	1010	-
2a.1.5.34	Low Pressure Extraction (Cont.)	-	263	-	-	-	-	-	11	274	-	-	274	-	-	-	-	-	-	2058	-
2a.1.5.35	Main Steam	-	11	-	-	-	-	-	11	22	-	-	22	-	-	-	-	-	-	100	-
2a.1.5.36	Main Steam RCA	-	114	3	65	-	-	-	419	602	1405	-	-	21808	-	-	-	-	1129284	17893	-
2a.1.5.37	Nitrogen (shared)	-	17	-	-	-	-	-	7	24	-	-	24	-	-	-	-	-	-	1811	-
2a.1.5.38	Nitrogen (shared) RCA	-	66	1	1	-	-	-	21	89	140	-	-	534	-	-	-	-	21704	1427	-
2a.1.5.39	Nitrogen (shared) RCA	-	14	-	-	-	-	-	3	17	-	-	17	-	-	-	-	-	-	438	-
2a.1.5.40	Plant Heating Steam (shared)	-	1213	-	-	-	-	-	38	1251	-	-	24	-	-	-	-	-	-	16304	178
2a.1.5.41	Plant Heating Steam (shared) RCA	-	26	1	1	-	-	-	10	38	111	-	-	401	-	-	-	-	16304	178	-
2a.1.5.42	Reactor Bldg. Seals	-	141	3	5	19	-	-	52	218	339	-	-	218	-	-	-	-	85488	2150	-
2a.1.5.43	Reactor Cooling Water	-	161	-	-	-	-	-	27	188	-	-	188	-	-	-	-	-	-	554	-
2a.1.5.44	Reactor Cooling Water RCA	-	161	-	-	-	-	-	27	188	-	-	188	-	-	-	-	-	-	554	-
2a.1.5.45	Sample Handling	-	15	2	1	157	-	-	15	175	-	-	175	-	-	-	-	-	70444	2047	-
2a.1.5.46	Sample Handling RCA	-	15	2	1	157	-	-	15	175	-	-	175	-	-	-	-	-	70444	2047	-
2a.1.5.47	S&Kona S&K Co. J. T. Pond (U/M/O)	-	17	-	-	-	-	-	8	25	-	-	25	-	-	-	-	-	-	1116	-
2a.1.5.48	Service Air (shared)	-	17	-	-	-	-	-	8	25	-	-	25	-	-	-	-	-	-	1116	-
2a.1.5.49	Service Air (shared) RCA	-	27	-	-	-	-	-	4	31	-	-	31	-	-	-	-	-	-	841	-
2a.1.5.50	Stator Cooling Water	-	11	-	-	-	-	-	11	22	-	-	22	-	-	-	-	-	-	1507	-
2a.1.5.51	Stator Cooling Water RCA	-	11	-	-	-	-	-	11	22	-	-	22	-	-	-	-	-	-	1507	-
2a.1.5.52	Steam Seal	-	1	1	-	48	-	-	11	50	118	-	-	533	-	-	-	-	2444	150	-
2a.1.5.53	Steam Seal RCA	-	1	1	-	48	-	-	11	50	118	-	-	533	-	-	-	-	2444	150	-
2a.1.5.54	Vacuum	-	17	-	-	-	-	-	17	34	-	-	34	-	-	-	-	-	-	1038	-
2a.1.5.55	Vacuum RCA	-	17	-	-	-	-	-	17	34	-	-	34	-	-	-	-	-	-	1038	-
2a.1.5.56	Waste	-	11	11	11	11	85	-	11	111	21408	-	-	111	-	-	-	-	4119780	19805	-
2a.1.5.57	Waste RCA	-	11	11	11	11	85	-	11	111	21408	-	-	111	-	-	-	-	4119780	19805	-
2a.1.5.58	Scaffolding in support of decommissioning	-	11	11	11	11	85	-	11	111	21408	-	-	111	-	-	-	-	4119780	19805	-

Table C-3  
 OCONEE Nuclear Station - Unit 3  
 DECON Decommissioning Cost Estimate  
 (thousands of 2008 dollars)

[illegible]

Table C-3  
Oconee Nuclear Station - Unit 3  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Own Cost	Relational Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	Reg. Lic. Term. Costs	Spent Fuel Management Costs	Silt Reclamation Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	BTCC Cu. Feet	Burial / Processed WL, Lbs.	Craft Manhours	Utility Kind	Contribution Manhours
Disposal of Pu/Pi Systems (continued)																						
2011.1.1	Instrument Air (shared) RCA	-	145	2	4	166	-	-	62	179	117	-	-	11125	-	-	-	-	73 E65	1142	-	
2011.1.2	Leak Test Rate (shared)	-	56	-	-	-	-	-	50	-	-	-	64	-	-	-	-	-	-	-	-	
2011.1.3	Liquid Waste (shared)	873	1186	108	137	227	930	-	1177	4629	4629	-	-	6854	4804	-	-	-	532 678	70 740	-	
2011.1.4	Liquid Waste Disposal	298	316	77	150	300	1081	-	1311	1668	6109	-	-	3300	0923	-	-	-	629 784	65 195	-	
2011.1.5	Low Enrichment Uranium (shared) RCA	-	518	56	15	818	506	-	342	2047	2017	-	-	367	2772	-	-	-	463 289	13 232	-	
2011.1.6	On-Site/Off-Site Fuel	-	1363	34	55	2264	-	-	697	4448	4448	-	-	25 228	-	-	-	-	1 021 540	12 245	-	
2011.1.7	Plant Drinking Water (shared)	-	141	-	-	-	-	-	14	111	-	-	15	-	-	-	-	-	-	2517	-	
2011.1.8	Plant Heating System (shared) RCA	-	108	1	2	11	-	-	11	265	243	-	-	1 005	-	-	-	-	40 769	21473	-	
2011.1.9	Purge	-	139	7	11	442	-	-	106	712	712	-	-	4842	-	-	-	-	156 641	13391	-	
2011.1.10	RFS Refueling Water	-	45	4	4	11	25	-	23	129	144	-	-	314	127	-	-	-	341 018	1 070	-	
2011.1.11	Radwaste Treatment (shared)	-	71	-	-	-	-	-	1	71	-	-	11	-	-	-	-	-	-	333	-	
2011.1.12	Radwaste Treatment Alarm RCA	-	29	0	0	9	-	-	9	29	29	-	-	43	-	-	-	-	2300	788	-	
2011.1.13	Radwaste Building Cooling	-	345	35	44	1705	-	-	131	2471	2471	-	-	18 746	-	-	-	-	741 247	6 761	-	
2011.1.14	Radiation Shielding	-	241	21	19	49	133	-	104	561	501	-	-	510	W3	-	-	-	80040	8 272	-	
2011.1.15	Reactor Coolant & Dilute	435	107	54	71	221	459	-	506	2343	2343	-	-	2436	2 696	-	-	-	109 231	14 094	-	
2011.1.16	Reactor Coolant System (shared)	167	151	18	17	33	112	-	149	132	632	-	-	44	632	-	-	-	6877	7 165	-	
2011.1.17	Reactor Building (shared)	-	547	98	10	207	541	-	303	1748	1748	-	-	2 275	3 039	-	-	-	34 056	13 695	-	
2011.1.18	Sanitary Waste (shared)	-	70	-	-	-	-	-	70	80	-	-	80	-	-	-	-	-	-	2 135	-	
2011.1.19	Sanitary Waste (shared) RCA	-	11	0	1	25	-	-	11	76	76	-	-	103	-	-	-	-	19 104	46	-	
2011.1.20	Sanitary Waste (shared) RCA	-	78	11	2	60	-	-	28	167	167	-	-	662	-	-	-	-	25184	10 33	-	
2011.1.21	Solidification (shared)	824	940	106	134	228	909	-	535	4 015	4316	-	-	2 490	4314	-	-	-	517 855	40 341	-	
2011.1.22	Thick Fuel	-	0	-	-	-	-	-	1	17	-	-	17	-	-	-	-	-	-	303	-	
2011.1.23	Ventilation (shared)	-	189	-	-	-	-	-	28	217	-	-	217	-	-	-	-	-	-	5 848	-	
2011.1.24	Ventilation (shared) RCA	-	112	8	9	D5	-	-	111	111	111	-	-	3 694	-	-	-	-	150 000	1 464	-	
2011.1.25	Ventilation (contaminated)	-	116	16	21	804	51	-	245	1 116	1 116	-	-	8 891	262	-	-	-	354 549	13385	-	
2011.1	Totals	1115	75 510	1 017	1 373	11 534	7 202	-	9 741	52 342	50 204	-	2 114	141 277	38 620	-	-	-	8 345 791	469 344	-	
2011.2	Scaffolding in Support of decommissioning	-	914	11	4	87	12	-	248	1241	1 293	-	-	423	60	-	-	-	48 735	28 238	-	
Decontamination of Site Buildings																						
2011.3.1	Radiation Shielding	770	1160	162	271	414	511	-	965	4 443	4443	-	-	4 611	10890	-	-	-	341 440	37 959	-	
2011.3.2	Auxiliary Building	362	203	34	11	117	117	-	289	1170	1170	-	-	107	3 241	-	-	-	250 716	11 311	-	
2011.3.3	Contaminated Misc. Structures (common)	15	7	2	3	-	5	-	11	44	44	-	-	-	137	-	-	-	-	521	-	
2011.3.4	Joint Maintenance Shop (common)	11	33	8	10	17	17	-	31	111	181	-	-	187	465	-	-	-	15 511	1111	-	
2011.3.5	Intimate Assembly Building (common)	103	33	16	28	15	34	-	11	129	329	-	-	109	937	-	-	-	73 229	3 741	-	
2011.3.6	Radioactive Waste (common)	370	116	48	71	217	712	-	340	1 475	1 415	-	-	1 362	2 637	-	-	-	278 549	85 264	-	
2011.3.7	Radioactive Waste Storage Facility (common)	11	12	2	3	2	4	-	11	15	157	-	-	18	125	-	-	-	9 371	2 462	-	
2011.3.8	Turbine Building	251	21	5	8	-	11	-	111	111	111	-	-	-	314	-	-	-	21 705	6 117	-	
2011.3	TURB	1 978	1514	320	45	139	1 261	-	1 899	8 195	8 195	-	-	8 125	18 756	-	-	-	1 525 252	62 572	-	
2011.4	Radioactive Waste Period 2011.4.1 (Costs)	5 084	16 245	1 351	1 045	14 370	1373	-	11 535	61 830	59 693	-	2 138	111 865	13 430	-	-	-	11 018 480	580 353	-	
Period 2011.4.2 Additional Costs																						
2011.4.2.1	Radioactive Waste Remediation	92	-	-	12	-	55	-	58	203	264	-	-	-	452	-	-	-	-	600	-	
2011.4.2.2	Radioactive Waste Range Closure	-	-	-	-	-	-	-	11	11	11	-	-	900	-	-	-	-	-	-	-	
2011.4.2.3	Radioactive Waste Period 2011.4.2.3 (Costs)	92	-	-	12	-	55	-	151	1154	264	-	-	900	452	-	-	-	-	600	-	
Period 2011.4.3 Collateral Costs																						
2011.4.3.1	Radioactive Waste	14	-	14	73	-	1 508	-	648	3 466	1 206	-	-	-	4 105	-	-	-	14 7192	800	-	
2011.4.3.2	Smelter (Radioactive)	-	167	-	-	-	-	-	10	167	167	-	-	-	-	-	-	-	-	-	-	
2011.4.3.3	Spent Fuel Capital and Transfer	-	-	-	-	-	-	-	11	675	-	577	-	-	-	-	-	-	-	-	-	
2011.4.3.4	Spent Fuel and Radioactive Waste Metal	-	-	-	-	-	-	-	84	643	643	-	-	-	-	-	-	-	-	-	-	
2011.4.3.5	Radioactive Waste Period 2011.4.3.5 (Costs)	14	167	14	73	-	1 508	-	658	5241	4156	577	-	-	4 105	-	-	-	14 7192	800	-	

Table C-3  
Oconee Nuclear Station - Unit 3  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 2b Period-Dependent Costs																					
2b.4.1	Decon supplies	1,203	-	-	-	-	-	-	301	1,504	1,504	-	-	-	-	-	-	-	-	-	-
2b.4.2	Insurance	-	-	-	-	-	-	658	66	724	724	-	-	-	-	-	-	-	-	-	-
2b.4.3	Property taxes	-	-	-	-	-	-	1,731	179	1,970	1,970	-	-	-	-	-	-	-	-	-	-
2b.4.4	Health physics supplies	-	3,412	-	-	-	-	-	853	4,265	4,265	-	-	-	-	-	-	-	-	-	-
2b.4.5	Heavy equipment rental	-	4,488	-	-	-	-	-	673	5,161	5,161	-	-	-	-	-	-	-	-	-	-
2b.4.6	Disposal of DAW generated	-	-	133	112	-	332	-	113	691	691	-	-	-	7,884	-	-	-	157,685	287	-
2b.4.7	Plant energy budget	-	-	-	-	-	-	2,040	306	2,346	2,346	-	-	-	-	-	-	-	-	-	-
2b.4.8	NRC Fees	-	-	-	-	-	-	926	93	1,019	1,019	-	-	-	-	-	-	-	-	-	-
2b.4.9	Emergency Planning Fees	-	-	-	-	-	-	577	58	635	-	635	-	-	-	-	-	-	-	-	-
2b.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	1,532	230	1,762	-	1,762	-	-	-	-	-	-	-	-	-
2b.4.11	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	365	58	443	443	-	-	-	-	-	-	-	-	-	-
2b.4.12	ISFSI Operating Costs	-	-	-	-	-	-	224	34	258	-	258	-	-	-	-	-	-	-	-	-
2b.4.13	Indirect Overhead	-	-	-	-	-	-	5,093	764	5,857	5,857	-	-	-	-	-	-	-	-	-	-
2b.4.14	Security Staff Cost	-	-	-	-	-	-	18,045	1,207	9,255	9,255	-	-	-	-	-	-	-	-	-	271,071
2b.4.15	Utility Staff Cost	-	-	-	-	-	-	48,786	7,318	56,104	56,104	-	-	-	-	-	-	-	-	-	850,714
2b.4	Subtotal Period 2b Period-Dependent Costs	1,203	7,900	133	112	-	332	70,060	12,251	91,991	89,337	2,654	-	-	7,884	-	-	-	157,685	287	1,121,786
2b.0	TOTAL PERIOD 2b COST	1,203	7,900	133	112	-	332	70,060	12,251	91,991	89,337	2,654	-	-	7,884	-	-	-	157,685	287	1,121,786
PERIOD 2c - Delay before Wet Fuel Storage Decontamination																					
Period 2c Direct Decommissioning Activities																					
Period 2c Additional Costs																					
2c.2.1	Landfill Post Closure Maintenance	-	-	-	-	-	-	259	26	285	-	-	285	-	-	-	-	-	-	-	-
2c.2	Subtotal Period 2c Additional Costs	-	-	-	-	-	-	259	26	285	-	-	285	-	-	-	-	-	-	-	-
Period 2c Collateral Costs																					
2c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	2,116	317	2,434	-	2,434	-	-	-	-	-	-	-	-	-
2c.3	Subtotal Period 2c Collateral Costs	-	-	-	-	-	-	2,116	317	2,434	-	2,434	-	-	-	-	-	-	-	-	-
Period 2c Period-Dependent Costs																					
2c.4.1	Insurance	-	-	-	-	-	-	2,006	201	2,207	-	2,207	-	-	-	-	-	-	-	-	-
2c.4.2	Property taxes	-	-	-	-	-	-	1,308	131	1,439	-	1,439	-	-	-	-	-	-	-	-	-
2c.4.3	Health physics supplies	-	581	-	-	-	-	-	145	726	-	726	-	-	-	-	-	-	-	-	-
2c.4.4	Disposal of DAW generated	-	-	10	10	-	31	-	10	64	-	64	-	-	727	-	-	-	14,548	26	-
2c.4.5	Plant energy budget	-	-	-	-	-	-	1,658	249	1,907	-	1,907	-	-	-	-	-	-	-	-	-
2c.4.6	NRC Fees	-	-	-	-	-	-	1,068	107	1,175	-	1,175	-	-	-	-	-	-	-	-	-
2c.4.7	Emergency Planning Fees	-	-	-	-	-	-	1,759	176	1,935	-	1,935	-	-	-	-	-	-	-	-	-
2c.4.8	Spent Fuel Pool O&M	-	-	-	-	-	-	4,669	700	5,369	-	5,369	-	-	-	-	-	-	-	-	-
2c.4.9	ISFSI Operating Costs	-	-	-	-	-	-	683	102	785	-	785	-	-	-	-	-	-	-	-	-
2c.4.10	Indirect Overhead	-	-	-	-	-	-	1,616	242	1,858	-	1,858	-	-	-	-	-	-	-	-	-
2c.4.11	Security Staff Cost	-	-	-	-	-	-	8,226	1,234	9,460	-	9,460	-	-	-	-	-	-	-	-	277,596
2c.4.12	Utility Staff Cost	-	-	-	-	-	-	14,962	2,244	17,206	-	17,206	-	-	-	-	-	-	-	-	270,009
2c.4	Subtotal Period 2c Period-Dependent Costs	-	581	10	10	-	31	37,956	5,542	44,132	-	44,132	-	-	727	-	-	-	14,548	26	547,596
2c.0	TOTAL PERIOD 2c COST	-	581	10	10	-	31	40,331	5,865	46,851	-	46,566	285	-	727	-	-	-	14,548	26	547,596
PERIOD 2d - Decontamination Following Wet Fuel Storage																					
Period 2d Direct Decommissioning Activities																					
2d.1.1	Remove spent fuel racks	197	20	77	43	-	301	-	193	931	931	-	-	-	1,540	-	-	-	138,215	601	-
Disposal of Plant Systems																					
2d.1.2.1	Spent Fuel Cooling	537	509	52	78	322	494	-	584	2,577	2,577	-	-	3,543	2,606	-	-	-	370,704	19,325	-
2d.1.2	Totals	537	509	52	78	322	494	-	584	2,577	2,577	-	-	3,543	2,606	-	-	-	370,704	19,325	-



Table C-3  
Oconee Nuclear Station - Unit 3  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Vol., Lbs.	Craft Manhours	Utility and Contractor Manhours
Decontamination of Site Buildings																					
2d 1.3.1	Fuel Building	261	266	7	10	118	16	-	229	938	938	-	-	1,293	291	-	-	-	72,736	13,194	-
2d 1.3	Totals	261	266	7	10	118	16	-	229	938	938	-	-	1,293	291	-	-	-	72,736	13,194	-
2d 1.4	Scaffolding in support of decommissioning	-	183	4	1	19	2	-	50	259	259	-	-	193	12	-	-	-	9,747	5,647	-
2d.1	Subtotal Period 2d Activity Costs	995	1,011	140	131	455	814	-	1,056	4,605	4,605	-	-	5,029	4,449	-	-	-	591,403	38,767	-
Period 2d Additional Costs																					
2d 2.1	License Termination Survey Management Program	-	-	-	-	-	-	616	185	801	801	-	-	-	-	-	-	-	-	-	6,240
2d 2.2	Landfill Post Closure Maintenance	-	-	-	-	-	-	22	2	24	-	-	24	-	-	-	-	-	-	-	-
2d.2	Subtotal Period 2d Additional Costs	-	-	-	-	-	-	638	187	825	801	-	24	-	-	-	-	-	-	-	6,240
Period 2d Collateral Costs																					
2d 3.1	Process liquid waste	118	-	102	310	-	689	-	261	1,471	1,471	-	-	-	1,735	-	-	-	151,921	338	-
2d 3.2	Small tool allowance	-	32	-	-	-	-	-	5	36	36	-	-	-	-	-	-	-	-	-	-
2d 3.3	Decommissioning Equipment Disposition	-	-	109	29	805	73	-	124	940	940	-	-	6,000	373	-	-	-	303,607	88	-
2d 3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	147	22	169	-	169	-	-	-	-	-	-	-	-	-
2d 3.5	Survey and Release of Scrap Metal	-	-	-	-	-	-	112	17	128	128	-	-	-	-	-	-	-	-	-	-
2d.3	Subtotal Period 2d Collateral Costs	118	32	211	340	605	732	258	449	2,745	2,576	169	-	6,000	2,108	-	-	-	455,428	426	-
Period 2d Period-Dependent Costs																					
2d 4.1	Decon supplies	-	-	-	-	-	-	-	18	89	89	-	-	-	-	-	-	-	-	-	-
2d 4.2	Insurance	-	-	-	-	-	-	169	17	186	186	-	-	-	-	-	-	-	-	-	-
2d 4.3	Property taxes	-	-	-	-	-	-	3	0	4	4	-	-	-	-	-	-	-	-	-	-
2d 4.4	Health physics supplies	-	364	-	-	-	-	-	96	480	480	-	-	-	-	-	-	-	-	-	-
2d 4.5	Heavy equipment rental	-	1,155	-	-	-	-	-	173	1,328	1,328	-	-	-	-	-	-	-	-	-	-
2d 4.6	Disposal of DAW generated	-	-	21	18	-	54	-	18	111	111	-	-	-	1,271	-	-	-	25,414	46	-
2d 4.7	Plant energy budget	-	-	-	-	-	-	280	42	322	322	-	-	-	-	-	-	-	-	-	-
2d 4.8	NRC Fees	-	-	-	-	-	-	238	24	262	262	-	-	-	-	-	-	-	-	-	-
2d 4.9	Emergency Planning Fees	-	-	-	-	-	-	149	15	163	-	163	-	-	-	-	-	-	-	-	-
2d 4.10	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	198	30	228	228	-	-	-	-	-	-	-	-	-	-
2d 4.11	ISFSI Operating Costs	-	-	-	-	-	-	58	8	66	-	66	-	-	-	-	-	-	-	-	-
2d 4.12	Indirect Overhead	-	-	-	-	-	-	901	135	1,036	1,036	-	-	-	-	-	-	-	-	-	-
2d 4.13	Security Staff Cost	-	-	-	-	-	-	1,329	184	1,414	1,414	-	-	-	-	-	-	-	-	-	36,670
2d 4.14	Utility Staff Cost	-	-	-	-	-	-	8,907	1,336	10,243	10,243	-	-	-	-	-	-	-	-	-	150,540
2d.4	Subtotal Period 2d Period-Dependent Costs	-	1,539	21	18	-	54	12,134	2,097	15,934	15,704	230	-	-	1,271	-	-	-	25,414	46	187,210
2d.0	TOTAL PERIOD 2d COST	1,164	2,581	372	489	1,064	1,600	13,030	3,789	24,110	23,687	396	24	11,029	7,828	-	-	-	1,072,245	39,340	193,450
PERIOD 2e - License Termination																					
Period 2e Direct Decommissioning Activities																					
2e 1.1	ORISE confirmatory survey	-	-	-	-	-	-	150	45	195	195	-	-	-	-	-	-	-	-	-	-
2e 1.2	Terminate license	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2e.1	Subtotal Period 2e Activity Costs	-	-	-	-	-	-	150	45	195	195	-	-	-	-	-	-	-	-	-	-
Period 2e Additional Costs																					
2e 2.1	License Termination Survey	-	-	-	-	-	-	6,848	2,055	8,904	8,904	-	-	-	-	-	-	-	-	171,046	3,120
2e 2.2	Landfill Post Closure Maintenance	-	-	-	-	-	-	31	3	34	-	-	34	-	-	-	-	-	-	-	-
2e.2	Subtotal Period 2e Additional Costs	-	-	-	-	-	-	6,880	2,058	8,938	8,904	-	34	-	-	-	-	-	-	171,046	3,120
Period 2e Collateral Costs																					
2e 3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	37	6	43	-	43	-	-	-	-	-	-	-	-	-
2e.3	Subtotal Period 2e Collateral Costs	-	-	-	-	-	-	37	6	43	-	43	-	-	-	-	-	-	-	-	-



Table C-3  
Oconee Nuclear Station - Unit 3  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
3b.2	Subtotal Period 3b Additional Costs	-	818	-	-	-	-	101	133	1,053	-	-	1,053	-	-	-	-	-	-	4,168	-
Period 3b Collateral Costs																					
3b.3.1	Small tool allowance	-	243	-	-	-	-	-	36	279	-	-	279	-	-	-	-	-	-	-	-
3b.3.2	Spent Fuel Capital and Transfer	-	-	-	-	-	-	115	17	132	-	132	-	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	-	243	-	-	-	-	115	54	411	-	132	279	-	-	-	-	-	-	-	-
Period 3b Period-Dependent Costs																					
3b.4.1	Insurance	-	-	-	-	-	-	688	67	735	0	661	73	-	-	-	-	-	-	-	-
3b.4.2	Property taxes	-	-	-	-	-	-	15	2	17	-	-	17	-	-	-	-	-	-	-	-
3b.4.3	Heavy equipment rental	-	6,792	-	-	-	-	-	1,019	7,811	-	-	7,811	-	-	-	-	-	-	-	-
3b.4.4	Plant energy budget	-	-	-	-	-	-	307	46	353	-	318	35	-	-	-	-	-	-	-	-
3b.4.5	NRC ISFSI Fees	-	-	-	-	-	-	457	46	502	-	502	-	-	-	-	-	-	-	-	-
3b.4.6	Emergency Planning Fees	-	-	-	-	-	-	77	8	85	-	85	-	-	-	-	-	-	-	-	-
3b.4.7	ISFSI Operating Costs	-	-	-	-	-	-	253	38	291	-	291	-	-	-	-	-	-	-	-	-
3b.4.8	Indirect Overhead	-	-	-	-	-	-	1,659	248	1,908	1,908	-	-	-	-	-	-	-	-	-	-
3b.4.9	Security Staff Cost	-	-	-	-	-	-	5,303	796	6,099	(0)	4,269	1,830	-	-	-	-	-	-	-	157,300
3b.4.10	Utility Staff Cost	-	-	-	-	-	-	16,831	2,526	19,355	0	17,420	1,836	-	-	-	-	-	-	-	277,090
3b.4	Subtotal Period 3b Period-Dependent Costs	-	6,792	-	-	-	-	25,570	4,793	37,155	1,908	23,547	11,701	-	-	-	-	-	-	-	434,390
3b.0	TOTAL PERIOD 3b COST	-	33,151	-	-	-	-	25,830	8,782	67,763	1,960	23,978	42,126	-	-	-	-	-	-	340,817	435,058
PERIOD 3c - Fuel Storage Operations/Shipping																					
Period 3c Direct Decommissioning Activities																					
Period 3c Additional Costs																					
3c.2.1	Landfill Post Closure Maintenance	-	-	-	-	-	-	56	6	62	-	-	62	-	-	-	-	-	-	-	-
3c.2	Subtotal Period 3c Additional Costs	-	-	-	-	-	-	56	6	62	-	-	62	-	-	-	-	-	-	-	-
Period 3c Collateral Costs																					
3c.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	66	10	76	-	76	-	-	-	-	-	-	-	-	-
3c.3	Subtotal Period 3c Collateral Costs	-	-	-	-	-	-	66	10	76	-	76	-	-	-	-	-	-	-	-	-
Period 3c Period-Dependent Costs																					
3c.4.1	Insurance	-	-	-	-	-	-	274	27	301	-	301	-	-	-	-	-	-	-	-	-
3c.4.2	Property taxes	-	-	-	-	-	-	6	1	7	-	7	-	-	-	-	-	-	-	-	-
3c.4.3	Plant energy budget	-	-	-	-	-	-	129	19	145	-	145	-	-	-	-	-	-	-	-	-
3c.4.4	NRC ISFSI Fees	-	-	-	-	-	-	241	24	265	-	265	-	-	-	-	-	-	-	-	-
3c.4.5	Emergency Planning Fees	-	-	-	-	-	-	95	10	105	-	105	-	-	-	-	-	-	-	-	-
3c.4.6	ISFSI Operating Costs	-	-	-	-	-	-	104	16	119	-	119	-	-	-	-	-	-	-	-	-
3c.4.7	Indirect Overhead	-	-	-	-	-	-	80	12	92	-	92	-	-	-	-	-	-	-	-	-
3c.4.8	Security Staff Cost	-	-	-	-	-	-	1,895	284	2,180	-	2,180	-	-	-	-	-	-	-	-	53,537
3c.4.9	Utility Staff Cost	-	-	-	-	-	-	771	116	887	-	887	-	-	-	-	-	-	-	-	13,384
3c.4	Subtotal Period 3c Period-Dependent Costs	-	-	-	-	-	-	3,592	508	4,100	-	4,100	-	-	-	-	-	-	-	-	66,921
3c.0	TOTAL PERIOD 3c COST	-	-	-	-	-	-	3,715	524	4,238	-	4,176	62	-	-	-	-	-	-	-	66,921
PERIOD 3d - GTCC shipping																					
Period 3d Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
3d.1.1.1	Vessel & Internals GTCC Disposal	-	-	-	-	-	9,749	-	1,462	11,212	11,212	-	-	-	-	-	-	440	79,646	-	-
3d.1.1	Totals	-	-	-	-	-	9,749	-	1,462	11,212	11,212	-	-	-	-	-	-	440	79,646	-	-
3d.1	Subtotal Period 3d Activity Costs	-	-	-	-	-	9,749	-	1,462	11,212	11,212	-	-	-	-	-	-	440	79,646	-	-

Table C-3  
Oconee Nuclear Station - Unit 3  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 3d Additional Costs																					
3d.2.1	Landfill Post Closure Maintenance	-	-	-	-	-	-	2	0	2	-	-	2	-	-	-	-	-	-	-	-
3d.2	Subtotal Period 3d Additional Costs	-	-	-	-	-	-	2	0	2	-	-	2	-	-	-	-	-	-	-	-
Period 3d Period-Dependent Costs																					
3d.4.1	Insurance	-	-	-	-	-	-	11	1	12	-	12	-	-	-	-	-	-	-	-	-
3d.4.2	Property taxes	-	-	-	-	-	-	0	0	0	-	0	-	-	-	-	-	-	-	-	-
3d.4.3	Plant energy budget	-	-	-	-	-	-	5	1	6	-	6	-	-	-	-	-	-	-	-	-
3d.4.4	NRC ISFSI Fees	-	-	-	-	-	-	8	1	9	-	8	-	-	-	-	-	-	-	-	-
3d.4.5	Emergency Planning Fees	-	-	-	-	-	-	4	0	4	-	4	-	-	-	-	-	-	-	-	-
3d.4.6	ISFSI Operating Costs	-	-	-	-	-	-	4	1	5	-	5	-	-	-	-	-	-	-	-	-
3d.4.7	Indirect Overhead	-	-	-	-	-	-	3	0	4	-	4	-	-	-	-	-	-	-	-	-
3d.4.8	Security Staff Cost	-	-	-	-	-	-	75	11	86	-	86	-	-	-	-	-	-	-	-	2,160
3d.4.9	Utility Staff Cost	-	-	-	-	-	-	31	5	36	-	36	-	-	-	-	-	-	-	-	840
3d.4	Subtotal Period 3d Period-Dependent Costs	-	-	-	-	-	-	143	20	163	-	163	-	-	-	-	-	-	-	-	2,700
3d.0	TOTAL PERIOD 3d COST	-	-	-	-	-	9,749	144	1,483	11,375	11,212	163	2	-	-	-	-	140	79,546	-	2,700
PERIOD 3e - ISFSI Decontamination																					
Period 3e Direct Decommissioning Activities																					
Period 3e Additional Costs																					
3e.2.1	ISFSI License Termination	-	2,395	12	91	-	1,628	1,252	1,208	6,585	-	6,585	-	-	9,342	-	-	-	1,815,475	47,563	2,560
3e.2.2	Landfill Post Closure Maintenance	-	-	-	-	-	-	14	1	15	-	-	15	-	-	-	-	-	-	-	-
3e.2	Subtotal Period 3e Additional Costs	-	2,395	12	91	-	1,628	1,266	1,210	6,600	-	6,585	15	-	9,342	-	-	-	1,815,475	47,563	2,560
Period 3e Collateral Costs																					
3e.3.1	Small tool allowance	-	35	-	-	-	-	-	5	40	-	40	-	-	-	-	-	-	-	-	-
3e.3	Subtotal Period 3e Collateral Costs	-	35	-	-	-	-	-	5	40	-	40	-	-	-	-	-	-	-	-	-
Period 3e Period-Dependent Costs																					
3e.4.1	Insurance	-	-	-	-	-	-	97	10	107	-	107	-	-	-	-	-	-	-	-	-
3e.4.2	Property taxes	-	-	-	-	-	-	2	0	2	-	2	-	-	-	-	-	-	-	-	-
3e.4.3	Heavy equipment rental	-	294	-	-	-	-	-	44	338	-	338	-	-	-	-	-	-	-	-	-
3e.4.4	Plant energy budget	-	-	-	-	-	-	45	7	51	-	51	-	-	-	-	-	-	-	-	-
3e.4.5	NRC ISFSI Fees	-	-	-	-	-	-	66	7	73	-	73	-	-	-	-	-	-	-	-	-
3e.4.6	Indirect Overhead	-	-	-	-	-	-	23	3	27	-	27	-	-	-	-	-	-	-	-	-
3e.4.7	Security Staff Cost	-	-	-	-	-	-	189	28	216	-	216	-	-	-	-	-	-	-	-	5,095
3e.4.8	Utility Staff Cost	-	-	-	-	-	-	227	34	261	-	261	-	-	-	-	-	-	-	-	3,866
3e.4	Subtotal Period 3e Period-Dependent Costs	-	294	-	-	-	-	648	133	1,074	-	1,074	-	-	-	-	-	-	-	-	8,961
3e.0	TOTAL PERIOD 3e COST	-	2,723	12	91	-	1,628	1,913	1,348	7,714	-	7,699	15	-	9,342	-	-	-	1,815,475	47,563	11,521
PERIOD 3f - ISFSI Site Restoration																					
Period 3f Direct Decommissioning Activities																					
Period 3f Additional Costs																					
3f.2.1	ISFSI Demolition and Restoration	-	990	-	-	-	-	39	154	1,183	-	1,183	-	-	-	-	-	-	-	7,678	160
3f.2.2	Landfill Maintenance Perpetuity	-	-	-	-	-	-	348	35	383	-	-	383	-	-	-	-	-	-	-	-
3f.2	Subtotal Period 3f Additional Costs	-	990	-	-	-	-	387	189	1,566	-	1,183	383	-	-	-	-	-	-	7,678	160
Period 3f Collateral Costs																					
3f.3.1	Small tool allowance	-	5	-	-	-	-	-	1	6	-	6	-	-	-	-	-	-	-	-	-
3f.3	Subtotal Period 3f Collateral Costs	-	5	-	-	-	-	-	1	6	-	6	-	-	-	-	-	-	-	-	-

Table C-3  
Oconee Nuclear Station - Unit 3  
DECON Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours	
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet				
Period 3/ Period-Dependent Costs																						
3f 4.1	Insurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
3f 4.2	Property taxes	-	-	-	-	-	-	1	0	1	-	1	-	-	-	-	-	-	-	-	-	
3f 4.3	Heavy equipment rental	-	96	-	-	-	-	-	14	111	-	111	-	-	-	-	-	-	-	-	-	
3f 4.4	Plant energy budget	-	-	-	-	-	-	22	3	25	-	25	-	-	-	-	-	-	-	-	-	
3f 4.5	Indirect Overhead	-	-	-	-	-	-	8	1	11	-	11	-	-	-	-	-	-	-	-	-	
3f 4.6	Security Staff Cost	-	-	-	-	-	-	93	14	107	-	107	-	-	-	-	-	-	-	-	2,527	
3f 4.7	Utility Staff Cost	-	-	-	-	-	-	95	14	109	-	109	-	-	-	-	-	-	-	-	1,569	
3f 4	Subtotal Period 3/ Period-Dependent Costs	-	96	-	-	-	-	220	47	364	-	364	-	-	-	-	-	-	-	-	4,096	
3f 0	TOTAL PERIOD 3/ COST	-	1,091	-	-	-	-	807	237	1,936	-	1,954	383	-	-	-	-	-	-	-	7,678	4,256
PERIOD 3 TOTALS		-	36,965	12	91	-	11,377	32,210	12,373	90,028	13,171	37,270	42,587	-	8,342	-	-	440	1,895,121	366,068	520,456	
TOTAL COST TO DECOMMISSION		12,473	96,774	11,236	7,059	27,659	73,885	283,964	95,346	512,096	468,948	92,545	50,600	297,359	172,537	3,887	517	440	26,851,350	1,592,712	4,072,828	

TOTAL COST TO DECOMMISSION WITH 19.38% CONTINGENCY:	\$612,096 thousands of 2008 dollars
TOTAL NRC LICENSE TERMINATION COST IS 76.6% OR:	\$468,948 thousands of 2008 dollars
SPENT FUEL MANAGEMENT COST IS 15.1% OR:	\$92,545 thousands of 2008 dollars
NON-NUCLEAR DEMOLITION COST IS 8.3% OR:	\$50,603 thousands of 2008 dollars
TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC):	176,940 cubic feet
TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED:	440 cubic feet
TOTAL SCRAP METAL REMOVED:	66,307 tons
TOTAL CRAFT LABOR REQUIREMENTS:	1,592,712 man-hours

End Notes:  
 n/a - indicates that this activity not charged as decommissioning expense;  
 a - indicates that this activity performed by decommissioning staff;  
 0 - indicates that this value is less than 0.5 but is non-zero;  
 a cell containing " - " indicates a zero value



APPENDIX D  
DETAILED COST ANALYSIS  
SAFSTOR

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Table D-1  
Oconee Nuclear Station - Unit 1  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
PERIOD 1a - Shutdown through Transition																					
Period 1a Direct Decommissioning Activities																					
1a.1.1	SAFSTOR site characterization survey	-	-	-	-	-	-	381	114	495	495	-	-	-	-	-	-	-	-	-	-
1a.1.2	Prepare preliminary decommissioning cost	-	-	-	-	-	-	88	13	101	101	-	-	-	-	-	-	-	-	-	1,900
1a.1.3	Notification of Cessation of Operations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1a.1.4	Remove fuel & source material	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1a.1.5	Notification of Permanent Defueling	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1a.1.6	Deactivate plant systems & process waste	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1a.1.7	Prepare and submit PSDAR	-	-	-	-	-	-	135	20	156	156	-	-	-	-	-	-	-	-	-	2,000
1a.1.8	Review plant dwgs & specs	-	-	-	-	-	-	88	13	101	101	-	-	-	-	-	-	-	-	-	1,300
1a.1.9	Perform detailed rad survey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1a.1.10	Estimate by-product inventory	-	-	-	-	-	-	68	10	78	78	-	-	-	-	-	-	-	-	-	1,000
1a.1.11	End product description	-	-	-	-	-	-	68	10	78	78	-	-	-	-	-	-	-	-	-	1,000
1a.1.12	Detailed by-product inventory	-	-	-	-	-	-	101	15	117	117	-	-	-	-	-	-	-	-	-	1,500
1a.1.13	Define major work sequence	-	-	-	-	-	-	68	10	78	78	-	-	-	-	-	-	-	-	-	1,000
1a.1.14	Perform SER and EA	-	-	-	-	-	-	210	31	241	241	-	-	-	-	-	-	-	-	-	3,100
1a.1.15	Perform Site-Specific Cost Study	-	-	-	-	-	-	338	51	389	389	-	-	-	-	-	-	-	-	-	5,000
Activity Specifications																					
1a.1.16.1	Prepare plant and facilities for SAFSTOR	-	-	-	-	-	-	333	50	383	383	-	-	-	-	-	-	-	-	-	4,920
1a.1.16.2	Plant systems	-	-	-	-	-	-	282	42	324	324	-	-	-	-	-	-	-	-	-	4,167
1a.1.16.3	Plant structures and buildings	-	-	-	-	-	-	211	32	243	243	-	-	-	-	-	-	-	-	-	3,120
1a.1.16.4	Waste management	-	-	-	-	-	-	135	20	156	156	-	-	-	-	-	-	-	-	-	2,000
1a.1.16.5	Facility and site dormancy	-	-	-	-	-	-	135	20	156	156	-	-	-	-	-	-	-	-	-	2,000
1a.1.16	Total	-	-	-	-	-	-	1,096	164	1,260	1,260	-	-	-	-	-	-	-	-	-	16,207
Detailed Work Procedures																					
1a.1.17.1	Plant systems	-	-	-	-	-	-	80	12	92	92	-	-	-	-	-	-	-	-	-	1,187
1a.1.17.2	Facility closeout & dormancy	-	-	-	-	-	-	81	12	93	93	-	-	-	-	-	-	-	-	-	1,200
1a.1.17	Total	-	-	-	-	-	-	161	24	185	185	-	-	-	-	-	-	-	-	-	2,387
1a.1.18	Procure vacuum drying system	-	-	-	-	-	-	7	1	8	8	-	-	-	-	-	-	-	-	-	100
1a.1.19	Drain/de-energize non-cont. systems	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1a.1.20	Drain & dry HSSS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1a.1.21	Drain/de-energize contaminated systems	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1a.1.22	Decontaminate contaminated systems	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1a.1	Subtotal Period 1a Activity Costs	-	-	-	-	-	-	2,808	478	3,286	3,286	-	-	-	-	-	-	-	-	-	35,890
Period 1a Additional Costs																					
1a.2.1	Asbestos Remediation	-	2,759	1	283	-	-	2,164	1,273	6,481	6,481	-	-	-	25,455	-	-	-	330,915	35,451	-
1a.2	Subtotal Period 1a Additional Costs	-	2,759	1	283	-	-	2,164	1,273	6,481	6,481	-	-	-	25,455	-	-	-	330,915	35,451	-
Period 1a Collateral Costs																					
1a.3.1	Small tool allowance	-	42	-	-	-	-	-	5	48	48	-	-	-	-	-	-	-	-	-	-
1a.3.2	Spent Fuel Capital and Transfer	-	-	-	-	-	-	1,248	187	1,435	-	1,435	-	-	-	-	-	-	-	-	-
1a.3	Subtotal Period 1a Collateral Costs	-	42	-	-	-	-	1,248	193	1,483	48	1,435	-	-	-	-	-	-	-	-	-
Period 1a Period-Dependent Costs																					
1a.4.1	Insurance	-	-	-	-	-	-	775	77	852	852	-	-	-	-	-	-	-	-	-	-
1a.4.2	Property taxes	-	-	-	-	-	-	1,386	139	1,524	1,524	-	-	-	-	-	-	-	-	-	-
1a.4.3	Health physics supplies	-	613	-	-	-	-	-	153	767	767	-	-	-	-	-	-	-	-	-	-
1a.4.4	Heavy equipment rental	-	458	-	-	-	-	-	69	526	526	-	-	-	-	-	-	-	-	-	-
1a.4.5	Disposal of DAW generated	-	-	10	9	-	26	-	9	54	54	-	-	-	616	-	-	-	12,311	22	-
1a.4.6	Plant energy budget	-	-	-	-	-	-	1,324	199	1,522	1,522	-	-	-	-	-	-	-	-	-	-
1a.4.7	NRC Fees	-	-	-	-	-	-	706	71	776	776	-	-	-	-	-	-	-	-	-	-

Table D-1  
Oconee Nuclear Station - Unit 1  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt. Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 1a Period-Dependent Costs (continued)																					
1a.4.8	Emergency Planning Fees	-	-	-	-	-	-	281	28	309	-	309	-	-	-	-	-	-	-	-	-
1a.4.9	FEMA Fees	-	-	-	-	-	-	129	19	145	145	-	-	-	-	-	-	-	-	-	-
1a.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	745	112	857	-	857	-	-	-	-	-	-	-	-	-
1a.4.11	Indirect Overhead	-	-	-	-	-	-	2,597	390	2,987	2,987	-	-	-	-	-	-	-	-	-	-
1a.4.12	Security Staff Cost	-	-	-	-	-	-	1,169	178	1,368	1,368	-	-	-	-	-	-	-	-	-	46,678
1a.4.13	Utility Staff Cost	-	-	-	-	-	-	23,876	3,581	27,458	27,458	-	-	-	-	-	-	-	-	-	433,829
1a.4	Subtotal Period 1a Period-Dependent Costs	-	1,071	10	9	-	26	33,005	5,024	39,146	37,979	1,196	-	-	616	-	-	-	12,311	22	480,507
1a.0	TOTAL PERIOD 1a COST	-	3,872	12	292	-	2,192	37,061	6,969	50,395	47,784	2,601	-	-	26,071	-	-	-	343,226	35,473	516,397
PERIOD 1b - SAFSTOR Limited DECON Activities																					
Period 1b Direct Decommissioning Activities																					
Decontamination of Site Buildings																					
1b.1.1.1	Reactor Building	759	-	-	-	-	-	-	379	1,138	1,138	-	-	-	-	-	-	-	-	19,093	-
1b.1.1.2	Auxiliary Building	297	-	-	-	-	-	-	148	445	445	-	-	-	-	-	-	-	-	7,865	-
1b.1.1.3	Turbine Building	222	-	-	-	-	-	-	111	333	333	-	-	-	-	-	-	-	-	5,893	-
1b.1.1.4	Fuel Building	201	-	-	-	-	-	-	100	301	301	-	-	-	-	-	-	-	-	4,427	-
1b.1.1	Totals	1,478	-	-	-	-	-	-	739	2,216	2,216	-	-	-	-	-	-	-	-	37,277	-
1b.1	Subtotal Period 1b Activity Costs	1,478	-	-	-	-	-	-	739	2,216	2,216	-	-	-	-	-	-	-	-	37,277	-
Period 1b Additional Costs																					
1b.2.1	Spent Fuel Pool Isolation	-	-	-	-	-	-	4,704	706	5,409	5,409	-	-	-	-	-	-	-	-	-	-
1b.2	Subtotal Period 1b Additional Costs	-	-	-	-	-	-	4,704	706	5,409	5,409	-	-	-	-	-	-	-	-	-	-
Period 1b Collateral Costs																					
1b.3.1	Decon equipment	883	-	-	-	-	-	-	132	1,016	1,016	-	-	-	-	-	-	-	-	-	-
1b.3.2	Process liquid waste	97	-	-	-	-	-	-	113	540	540	-	-	-	563	-	-	-	39,804	129	-
1b.3.3	Small tool allowance	-	26	-	-	-	-	-	4	30	30	-	-	-	-	-	-	-	-	-	-
1b.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	87	13	101	-	101	-	-	-	-	-	-	-	-	-
1b.3	Subtotal Period 1b Collateral Costs	981	26	30	17	-	-	87	263	1,686	1,585	101	-	-	563	-	-	-	39,804	129	-
Period 1b Period-Dependent Costs																					
1b.4.1	Decon supplies	682	-	-	-	-	-	-	170	852	852	-	-	-	-	-	-	-	-	-	-
1b.4.2	Insurance	-	-	-	-	-	-	195	20	215	215	-	-	-	-	-	-	-	-	-	-
1b.4.3	Property taxes	-	-	-	-	-	-	349	36	384	384	-	-	-	-	-	-	-	-	-	-
1b.4.4	Health physics supplies	-	276	-	-	-	-	-	69	345	345	-	-	-	-	-	-	-	-	-	-
1b.4.5	Heavy equipment rental	-	115	-	-	-	-	-	17	133	133	-	-	-	-	-	-	-	-	-	-
1b.4.6	Disposal of DAW generated	-	-	9	6	-	23	-	8	49	49	-	-	-	557	-	-	-	11,133	20	-
1b.4.7	Plant energy budget	-	-	-	-	-	-	334	50	384	384	-	-	-	-	-	-	-	-	-	-
1b.4.8	NRC Fees	-	-	-	-	-	-	178	18	196	196	-	-	-	-	-	-	-	-	-	-
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	71	7	78	-	78	-	-	-	-	-	-	-	1	-
1b.4.10	FEMA Fees	-	-	-	-	-	-	32	5	37	37	-	-	-	-	-	-	-	-	-	-
1b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	188	28	216	-	216	-	-	-	-	-	-	-	-	-
1b.4.12	Indirect Overhead	-	-	-	-	-	-	655	98	753	753	-	-	-	-	-	-	-	-	-	-
1b.4.13	Security Staff Cost	-	-	-	-	-	-	300	45	345	345	-	-	-	-	-	-	-	-	-	11,765
1b.4.14	Utility Staff Cost	-	-	-	-	-	-	6,018	903	6,921	6,921	-	-	-	-	-	-	-	-	-	109,349
1b.4	Subtotal Period 1b Period-Dependent Costs	682	391	9	6	-	23	9,319	1,473	10,906	10,612	294	-	-	557	-	-	-	11,133	20	121,114
1b.0	TOTAL PERIOD 1b COST	3,141	4,171	48	125	-	196	13,110	3,181	20,219	19,824	394	-	-	1,220	-	-	-	50,937	37,427	121,114

Table D-1  
Oconee Nuclear Station - Unit 1  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				GTCC	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet					
PERIOD 1c - Preparations for SAFSTOR Dormancy																						
Period 1c Direct Decommissioning Activities																						
1c.1.1	Prepare support equipment for storage	-	185	-	-	-	-	-	58	446	446	-	-	-	-	-	-	-	-	3,000	-	
1c.1.2	Install containment pressure equal. lines	-	32	-	-	-	-	-	5	36	36	-	-	-	-	-	-	-	-	700	-	
1c.1.3	Interim survey prior to dormancy	-	-	-	-	-	-	133	220	953	953	-	-	-	-	-	-	-	-	14,101	-	
1c.1.4	Secure building accesses	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-	-	
1c.1.5	Prepare & submit interim report	-	-	-	-	-	-	39	6	45	45	-	-	-	-	-	-	-	-	-	583	
1c.1	Subtotal Period 1c Activity Costs	-	420	-	-	-	-	772	289	1,481	1,481	-	-	-	-	-	-	-	-	17,801	583	
Period 1c Collateral Costs																						
1c.3.1	Process liquid waste	116	-	47	140	-	206	-	136	645	645	-	-	-	793	-	-	-	-	47,568	155	-
1c.3.2	Small tool allowance	-	3	-	-	-	-	-	10	4	4	-	-	-	-	-	-	-	-	-	-	-
1c.3.3	Spent Fuel Capital and Transfer	-	-	-	-	-	-	87	13	101	-	101	-	-	-	-	-	-	-	-	-	-
1c.3	Subtotal Period 1c Collateral Costs	116	3	47	140	-	206	87	149	749	648	101	-	-	793	-	-	-	-	47,568	155	-
Period 1c Period-Dependent Costs																						
1c.4.1	Insurance	-	-	-	-	-	-	185	20	215	215	-	-	-	-	-	-	-	-	-	-	-
1c.4.2	Property taxes	-	-	-	-	-	-	349	35	384	384	-	-	-	-	-	-	-	-	-	-	-
1c.4.3	Health physics supplies	-	193	-	-	-	-	-	48	241	241	-	-	-	-	-	-	-	-	-	-	-
1c.4.4	Heavy equipment rental	-	110	-	-	-	-	-	17	133	133	-	-	-	-	-	-	-	-	-	-	-
1c.4.5	Disposal of DAW generated	-	-	3	2	-	7	-	2	14	14	-	-	-	155	-	-	-	-	3,103	6	-
1c.4.6	Plant energy budget	-	-	-	-	-	-	334	50	384	384	-	-	-	-	-	-	-	-	-	-	-
1c.4.7	NRC Fees	-	-	-	-	-	-	178	18	196	196	-	-	-	-	-	-	-	-	-	-	-
1c.4.8	Emergency Planning Fees	-	-	-	-	-	-	71	7	78	-	78	-	-	-	-	-	-	-	-	-	-
1c.4.9	FEMA Fees	-	-	-	-	-	-	32	5	37	37	-	-	-	-	-	-	-	-	-	-	-
1c.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	188	28	216	-	216	-	-	-	-	-	-	-	-	-	-
1c.4.11	Indirect Overhead	-	-	-	-	-	-	655	99	753	753	-	-	-	-	-	-	-	-	-	-	-
1c.4.12	Security Staff Cost	-	-	-	-	-	-	300	45	345	345	-	-	-	-	-	-	-	-	-	-	11,755
1c.4.13	Utility Staff Cost	-	-	-	-	-	-	6,018	903	6,921	6,921	-	-	-	-	-	-	-	-	-	-	109,348
1c.4	Subtotal Period 1c Period-Dependent Costs	-	308	3	2	-	7	8,319	1,276	9,515	9,621	294	-	-	155	-	-	-	-	3,103	6	121,114
1c.0	TOTAL PERIOD 1c COST	116	731	49	142	-	213	9,179	1,714	12,144	11,750	394	-	-	948	-	-	-	-	50,671	17,961	121,697
PERIOD 1 TOTALS		3,258	5,020	110	559	-	2,599	59,350	11,964	82,759	79,368	3,390	-	-	28,239	-	-	-	-	444,834	90,862	758,208
PERIOD 2a - SAFSTOR Dormancy with Wet Spent Fuel Storage																						
Period 2a Direct Decommissioning Activities																						
2a.1.1	Quarterly inspection	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.1.2	Semi-annual environmental survey	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.1.3	Prepare reports	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.1.4	Bituminous roof replacement	-	-	-	-	-	-	351	39	390	390	-	-	-	-	-	-	-	-	-	-	-
2a.1.5	Maintenance supplies	-	-	-	-	-	-	1,370	342	1,712	1,712	-	-	-	-	-	-	-	-	-	-	-
2a.1	Subtotal Period 2a Activity Costs	-	-	-	-	-	-	1,631	382	2,013	2,013	-	-	-	-	-	-	-	-	-	-	-
Period 2a Collateral Costs																						
2a.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	3,432	515	3,947	-	3,947	-	-	-	-	-	-	-	-	-	-
2a.3	Subtotal Period 2a Collateral Costs	-	-	-	-	-	-	3,432	515	3,947	-	3,947	-	-	-	-	-	-	-	-	-	-
Period 2a Period-Dependent Costs																						
2a.4.1	Insurance	-	-	-	-	-	-	3,492	349	3,841	3,335	506	-	-	-	-	-	-	-	-	-	-
2a.4.2	Property taxes	-	-	-	-	-	-	4,756	476	5,231	78	5,154	-	-	-	-	-	-	-	-	-	-
2a.4.3	Health physics supplies	-	1,811	-	-	-	-	-	253	1,264	1,264	-	-	-	-	-	-	-	-	-	-	-
2a.4.4	Disposal of DAW generated	-	-	72	50	-	179	-	61	372	372	-	-	-	4,248	-	-	-	-	84,987	155	-

Table D-1  
Oconee Nuclear Station - Unit 1  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt. Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 2a Period-Dependent Costs (continued)																					
2a 4.5	Plant energy budget	-	-	-	-	-	-	2,885	431	3,316	1,659	1,659	-	-	-	-	-	-	-	-	-
2a 4.6	NRC Fees	-	-	-	-	-	-	2,196	220	2,416	2,416	-	-	-	-	-	-	-	-	-	-
2a 4.7	Emergency Planning Fees	-	-	-	-	-	-	3,061	306	3,367	-	3,367	-	-	-	-	-	-	-	-	-
2a 4.8	Spent Fuel Pool O&M	-	-	-	-	-	-	5,124	1,219	6,343	-	6,343	-	-	-	-	-	-	-	-	-
2a 4.9	Indirect Overhead	-	-	-	-	-	-	2,812	422	3,234	1,369	1,369	-	-	-	-	-	-	-	-	-
2a 4.10	Security Staff Cost	-	-	-	-	-	-	14,315	2,147	16,463	5,659	10,804	-	-	-	-	-	-	-	-	483,043
2a 4.11	Utility Staff Cost	-	-	-	-	-	-	26,036	3,905	29,941	12,150	17,791	-	-	-	-	-	-	-	-	469,859
2a 4	Subtotal Period 2a Period-Dependent Costs	-	1,011	72	60	-	179	61,676	8,790	70,466	28,302	50,489	-	-	4,249	-	-	-	84,987	155	952,901
2a 0	TOTAL PERIOD 2a COST	-	1,011	72	60	-	179	72,741	10,687	84,749	30,315	54,434	-	-	4,249	-	-	-	84,987	155	952,901
PERIOD 2b - SAFSTOR Dormancy with Dry Spent Fuel Storage																					
Period 2b Direct Decommissioning Activities																					
2b 1.1	Quarterly inspection	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
2b 1.2	Semi-annual environmental survey	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
2b 1.3	Prepare reports	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
2b 1.4	Bituminous roof replacement	-	-	-	-	-	-	110	17	127	127	-	-	-	-	-	-	-	-	-	-
2b 1.5	Maintenance supplies	-	-	-	-	-	-	577	144	721	721	-	-	-	-	-	-	-	-	-	-
2b 1	Subtotal Period 2b Activity Costs	-	-	-	-	-	-	687	161	848	848	-	-	-	-	-	-	-	-	-	-
Period 2b Collateral Costs																					
2b 3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	406	61	467	-	467	-	-	-	-	-	-	-	-	-
2b 3	Subtotal Period 2b Collateral Costs	-	-	-	-	-	-	406	61	467	-	467	-	-	-	-	-	-	-	-	-
Period 2b Period-Dependent Costs																					
2b 4.1	Insurance	-	-	-	-	-	-	1,122	132	1,454	1,405	49	-	-	-	-	-	-	-	-	-
2b 4.2	Property taxes	-	-	-	-	-	-	30	3	33	33	-	-	-	-	-	-	-	-	-	-
2b 4.3	Health physics supplies	-	410	-	-	-	-	-	103	513	513	-	-	-	-	-	-	-	-	1	-
2b 4.4	Disposal of DAW generated	-	-	30	25	-	74	-	26	155	155	-	-	-	1,764	-	-	-	35,290	64	-
2b 4.5	Plant energy budget	-	-	-	-	-	-	608	91	699	699	-	-	-	-	-	-	-	-	-	-
2b 4.6	NRC Fees	-	-	-	-	-	-	925	93	1,018	1,018	-	-	-	-	-	-	-	-	-	-
2b 4.7	Emergency Planning Fees	-	-	-	-	-	-	153	15	168	-	168	-	-	-	-	-	-	-	-	-
2b 4.8	Indirect Overhead	-	-	-	-	-	-	917	138	1,055	577	478	-	-	-	-	-	-	-	-	-
2b 4.9	Security Staff Cost	-	-	-	-	-	-	3,048	457	3,505	2,384	1,120	-	-	-	-	-	-	-	-	66,194
2b 4.10	Utility Staff Cost	-	-	-	-	-	-	8,424	1,264	9,687	5,119	4,568	-	-	-	-	-	-	-	-	153,234
2b 4	Subtotal Period 2b Period-Dependent Costs	-	410	30	25	-	74	15,426	2,320	18,286	11,902	8,384	-	-	1,764	-	-	-	35,290	64	239,429
2b 0	TOTAL PERIOD 2b COST	-	410	30	25	-	74	16,520	2,542	19,601	12,750	6,851	-	-	1,764	-	-	-	35,290	64	239,429
PERIOD 2c - SAFSTOR Dormancy without Spent Fuel Storage																					
Period 2c Direct Decommissioning Activities																					
2c 1.1	Quarterly inspection	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
2c 1.2	Semi-annual environmental survey	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
2c 1.3	Prepare reports	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	-
2c 1.4	Bituminous roof replacement	-	-	-	-	-	-	864	130	993	993	-	-	-	-	-	-	-	-	-	-
2c 1.5	Maintenance supplies	-	-	-	-	-	-	4,529	1,132	5,662	5,662	-	-	-	-	-	-	-	-	-	-
2c 1	Subtotal Period 2c Activity Costs	-	-	-	-	-	-	5,393	1,262	6,655	6,655	-	-	-	-	-	-	-	-	-	-
Period 2c Period-Dependent Costs																					
2c 4.1	Insurance	-	-	-	-	-	-	10,024	1,002	11,027	11,027	-	-	-	-	-	-	-	-	-	-
2c 4.2	Property taxes	-	-	-	-	-	-	234	23	257	257	-	-	-	-	-	-	-	-	-	-
2c 4.3	Health physics supplies	-	3,028	-	-	-	-	-	757	3,785	3,785	-	-	-	-	-	-	-	-	-	-
2c 4.4	Disposal of DAW generated	-	-	229	192	-	570	-	194	1,185	1,185	-	-	-	13,532	-	-	-	270,635	493	-
2c 4.5	Plant energy budget	-	-	-	-	-	-	4,770	715	5,485	5,485	-	-	-	-	-	-	-	-	-	-



Table D-1  
Oconee Nuclear Station - Unit 1  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	P&O/Closing Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Indirect Contingency	Total Cost	NRC Lic. Form. Costs	Spent Fuel Relocation Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	Glaze Cu. Feet	Buildup Processed WL Lbs.	Craft Man/hours	Utility Cost Contractor Man/hours
Period 2c Period-Dependent COOs (continued)																					
2c.4.6	NRC Fees	-	-	-	-	-	-	015	650	665	723	723	-	-	-	-	-	-	-	-	-
2c.4.7	Indirect Overhead	-	-	-	-	-	-	3,537	590	4,127	4,127	-	-	-	-	-	-	-	-	-	-
2c.4.8	Swallowtail Staff Cost	-	-	-	-	-	-	16,269	3,463	19,732	19,732	-	-	-	-	-	-	-	-	-	375,775
2c.4.9	Material State Cost	-	-	-	-	-	-	24,422	5,100	29,522	29,522	-	-	-	-	-	-	-	-	-	551,008
2c.4	Subtotal Period 2c Period-Dependent Costs	-	3,001	229	187	-	77	76,740	11,711	88,557	88,557	-	-	-	13,532	-	-	-	2,063,616	493	1,013,731
2c	TC Period 2c Cost	-	3,001	229	187	-	77	76,740	11,711	88,557	88,557	-	-	-	13,532	-	-	-	2,063,616	493	1,013,731
PERIOD 2 TOTALS																					
		-	3,001	229	187	-	77	76,740	11,711	88,557	88,557	-	-	-	13,532	-	-	-	2,063,616	493	1,013,731
PERIOD 3a - Final Site Following SAFSTOR Occupancy																					
Period 3a Direct Decommissioning Activities																					
3a.1.1	Prepare Preliminary O&M/Water/Waste Plan	-	-	-	-	-	-	88	11	99	107	-	-	-	-	-	-	-	-	-	1,000
3a.1.2	Review plant O&M & specs. (from original rad waste)	-	-	-	-	-	-	311	11	322	358	-	-	-	-	-	-	-	-	-	4,000
3a.1.3	End product disposition	-	-	-	-	-	-	08	10	18	18	-	-	-	-	-	-	-	-	-	1,000
3a.1.4	Obtain regulatory inventory	-	-	-	-	-	-	05	13	18	18	-	-	-	-	-	-	-	-	-	1,000
3a.1.5	Obtain regulatory sequence	-	-	-	-	-	-	507	76	583	583	-	-	-	-	-	-	-	-	-	7,500
3a.1.6	Perform S&F and EA	-	-	-	-	-	-	210	11	221	221	-	-	-	-	-	-	-	-	-	3,000
3a.1.7	Perform Site-Specific S&F Study	-	-	-	-	-	-	335	51	386	386	-	-	-	-	-	-	-	-	-	6,000
3a.1.8	Prepare/submit License Termination Plan	-	-	-	-	-	-	277	43	320	320	-	-	-	-	-	-	-	-	-	4,000
3a.1.9	Obtain NRC approval of termination plan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Activity Specifications																					
3a.1.1.1	Re-activate plant & temporary facilities	-	-	-	-	-	-	408	26	434	515	-	5'	-	-	-	-	-	-	-	7,500
3a.1.1.2	Plant operations	-	-	-	-	-	-	161	47	208	240	-	32	-	-	-	-	-	-	-	4,167
3a.1.1.3	Reactor vessel	-	-	-	-	-	-	490	72	562	552	-	-	-	-	-	-	-	-	-	7,100
3a.1.1.4	Reactor vessel	-	-	-	-	-	-	490	66	556	500	-	-	-	-	-	-	-	-	-	6,500
3a.1.1.5	Reactor vessel	-	-	-	-	-	-	490	66	556	500	-	-	-	-	-	-	-	-	-	6,500
3a.1.1.6	Reinforced concrete	-	-	-	-	-	-	211	10	221	221	-	-	-	-	-	-	-	-	-	3,120
3a.1.1.7	Reinforced concrete	-	-	-	-	-	-	211	10	221	221	-	-	-	-	-	-	-	-	-	3,120
3a.1.1.8	Reinforced concrete	-	-	-	-	-	-	211	10	221	221	-	-	-	-	-	-	-	-	-	3,120
3a.1.1.9	Reinforced concrete	-	-	-	-	-	-	211	10	221	221	-	-	-	-	-	-	-	-	-	3,120
3a.1.1.10	Reinforced concrete	-	-	-	-	-	-	211	10	221	221	-	-	-	-	-	-	-	-	-	3,120
3a.1.1.11	Waste management	-	-	-	-	-	-	111	17	128	145	-	-	-	-	-	-	-	-	-	4,500
3a.1.1.12	Waste management	-	-	-	-	-	-	61	8	69	77	-	-	-	-	-	-	-	-	-	600
3a.1.1	Total	-	-	-	-	-	-	2,650	404	3,054	2,723	-	30	-	-	-	-	-	-	-	34,777
Shipping & Site Preparations																					
3a.1.12	Prepare & maintain shipping office	-	-	-	-	-	-	162	24	186	101	-	-	-	-	-	-	-	-	-	2,400
3a.1.13	Plant prep. & temp. waste	-	-	-	-	-	-	1,800	405	2,205	3,105	-	-	-	-	-	-	-	-	-	-
3a.1.14	Decontamination clean-up system	-	-	-	-	-	-	62	14	76	101	-	-	-	-	-	-	-	-	-	1,400
3a.1.15	Decontamination Cont. Enviro. monitoring	-	-	-	-	-	-	3,000	30	3,030	2,430	-	-	-	-	-	-	-	-	-	-
3a.1.16	Procure & install rad. & environmental	-	-	-	-	-	-	62	12	74	96	-	-	-	-	-	-	-	-	-	1,000
3a.1	Subtotal Period 3a Activities Costs	-	-	-	-	-	-	5,777	1,656	7,433	10,804	-	30	-	-	-	-	-	-	-	72,703
Period 3a Additional Costs																					
3a.2.1	Site Closure/terminal Survey	-	-	-	-	-	-	2,127	101	2,228	3,835	-	-	-	-	-	-	-	-	19,100	1,852
3a.2	Subtotal Period 3a Additional Costs	-	-	-	-	-	-	2,127	101	2,228	3,835	-	-	-	-	-	-	-	-	19,100	1,852
Period 3a Period-Dependent Costs																					
3a.4.1	Insurance	-	-	-	-	-	-	378	18	396	306	-	-	-	-	-	-	-	-	-	-
3a.4.2	Property taxes	-	-	-	-	-	-	0	1	1	1	-	-	-	-	-	-	-	-	-	-
3a.4.3	Health physics supplies	-	401	-	-	-	-	-	100	501	501	-	-	-	-	-	-	-	-	-	-

Table D-1  
Oconee Nuclear Station - Unit 1  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt. Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Period 3a Period-Dependent Costs (continued)																					
3a.4.4	Heavy equipment rental	-	458	-	-	-	-	-	69	526	326	-	-	-	-	-	-	-	-	-	-
3a.4.5	Disposal of DAW generated	-	-	9	-	-	22	-	7	45	45	-	-	-	514	-	-	-	10,287	19	-
3a.4.6	Plant energy budget	-	-	-	-	-	-	1,324	189	1,522	1,522	-	-	-	-	-	-	-	-	-	-
3a.4.7	NRC Fees	-	-	-	-	-	-	249	25	274	274	-	-	-	-	-	-	-	-	-	-
3a.4.8	Indirect Overhead	-	-	-	-	-	-	1,548	232	1,780	1,780	-	-	-	-	-	-	-	-	-	-
3a.4.9	Security Staff Cost	-	-	-	-	-	-	162	24	186	186	-	-	-	-	-	-	-	-	-	8,257
3a.4.10	Utility Staff Cost	-	-	-	-	-	-	14,419	2,163	16,582	16,582	-	-	-	-	-	-	-	-	-	258,629
3a.4	Subtotal Period 3a Period-Dependent Costs	-	859	9	7	-	22	17,986	2,848	21,730	21,730	-	-	-	514	-	-	-	10,287	19	264,886
3a.0	TOTAL PERIOD 3a COST	-	859	9	7	-	22	30,630	5,183	36,710	36,739	-	370	-	514	-	-	-	10,287	19,119	345,446
PERIOD 3b - Decommissioning Preparations																					
Period 3b Direct Decommissioning Activities																					
Detailed Work Procedures																					
3b.1.1.1	Plant systems	-	-	-	-	-	-	433	65	498	448	-	50	-	-	-	-	-	-	-	4,733
3b.1.1.2	Reactor internals	-	-	-	-	-	-	229	34	263	263	-	-	-	-	-	-	-	-	-	2,500
3b.1.1.3	Remaining buildings	-	-	-	-	-	-	124	19	142	36	-	107	-	-	-	-	-	-	-	1,350
3b.1.1.4	CRD cooling assembly	-	-	-	-	-	-	92	14	105	105	-	-	-	-	-	-	-	-	-	1,000
3b.1.1.5	CRD housings & ICI tubes	-	-	-	-	-	-	92	14	105	105	-	-	-	-	-	-	-	-	-	1,000
3b.1.1.6	Incore instrumentation	-	-	-	-	-	-	92	14	105	105	-	-	-	-	-	-	-	-	-	1,000
3b.1.1.7	Reactor vessel	-	-	-	-	-	-	332	50	382	382	-	-	-	-	-	-	-	-	-	3,630
3b.1.1.8	Facility closeout	-	-	-	-	-	-	110	15	126	63	-	63	-	-	-	-	-	-	-	1,200
3b.1.1.9	Missile shields	-	-	-	-	-	-	41	6	47	47	-	-	-	-	-	-	-	-	-	450
3b.1.1.10	Biological shield	-	-	-	-	-	-	110	15	126	126	-	-	-	-	-	-	-	-	-	1,200
3b.1.1.11	Steam generators	-	-	-	-	-	-	421	63	484	484	-	-	-	-	-	-	-	-	-	4,600
3b.1.1.12	Reinforced concrete	-	-	-	-	-	-	92	14	105	53	-	53	-	-	-	-	-	-	-	1,000
3b.1.1.13	Main Turbine	-	-	-	-	-	-	143	21	164	-	-	164	-	-	-	-	-	-	-	1,560
3b.1.1.14	Main Condensers	-	-	-	-	-	-	143	21	164	-	-	164	-	-	-	-	-	-	-	1,560
3b.1.1.15	Auxiliary building	-	-	-	-	-	-	250	37	287	259	-	29	-	-	-	-	-	-	-	2,730
3b.1.1.16	Reactor building	-	-	-	-	-	-	250	37	287	259	-	29	-	-	-	-	-	-	-	2,730
3b.1.1	Total	-	-	-	-	-	-	2,951	443	3,394	2,736	-	658	-	-	-	-	-	-	-	32,243
3b.1	Subtotal Period 3b Activity Costs	-	-	-	-	-	-	2,951	443	3,394	2,736	-	658	-	-	-	-	-	-	-	32,243
Period 3b Collateral Costs																					
3b.3.1	Decon equipment	883	-	-	-	-	-	-	132	1,018	1,018	-	-	-	-	-	-	-	-	-	-
3b.3.2	Pipe cutting equipment	-	1,000	-	-	-	-	-	150	1,150	1,150	-	-	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	883	1,000	-	-	-	-	-	282	2,168	2,168	-	-	-	-	-	-	-	-	-	-
Period 3b Period-Dependent Costs																					
3b.4.1	Decon supplies	27	-	-	-	-	-	-	7	34	34	-	-	-	-	-	-	-	-	-	-
3b.4.2	Insurance	-	-	-	-	-	-	160	16	176	176	-	-	-	-	-	-	-	-	-	-
3b.4.3	Property taxes	-	-	-	-	-	-	3	5	4	4	-	-	-	-	-	-	-	-	-	-
3b.4.4	Health physics supplies	-	216	-	-	-	-	-	54	272	272	-	-	-	-	-	-	-	-	-	-
3b.4.5	Heavy equipment rental	-	229	-	-	-	-	-	34	263	263	-	-	-	-	-	-	-	-	-	-
3b.4.6	Disposal of DAW generated	-	-	5	4	-	12	-	4	25	25	-	-	-	285	-	-	-	5,706	10	-
3b.4.7	Plant energy budget	-	-	-	-	-	-	660	99	759	759	-	-	-	-	-	-	-	-	-	-
3b.4.8	NRC Fees	-	-	-	-	-	-	124	12	137	137	-	-	-	-	-	-	-	-	-	-
3b.4.9	Indirect Overhead	-	-	-	-	-	-	1,071	161	1,231	1,231	-	-	-	-	-	-	-	-	-	-
3b.4.10	Security Staff Cost	-	-	-	-	-	-	81	12	93	93	-	-	-	-	-	-	-	-	-	3,120
3b.4.11	Utility Staff Cost	-	-	-	-	-	-	10,191	1,529	11,720	11,720	-	-	-	-	-	-	-	-	-	178,880
3b.4	Subtotal Period 3b Period-Dependent Costs	27	446	5	4	-	12	12,290	1,929	14,712	14,712	-	-	-	285	-	-	-	5,706	10	182,000
3b.0	TOTAL PERIOD 3b COST	910	1,446	5	4	-	14	15,241	2,694	20,271	19,613	-	658	-	285	-	-	-	5,706	10	214,243

Table D-1  
Oconee Nuclear Station - Unit 1  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2006 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	License Costs	Other Costs	Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Managem. Costs	Site Remediation Costs	Process Mfg. Volume Cu. Ft.	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial/Processed Wt., Lbs.	Crate/MSL/hrs	Utility/Inc. Cost/Manhours
PERIOD 3 TOTALS		90	234	16	0	-	14	45,871	7,837	56,981	55,953	-	1,028	-	800	-	-	-	15,393	15,393	56,981
Period 3a - Large Component Removal																					
Removal of Main Equipment																					
4a.1.1.1	Reactor Casing Removal	71	136	16	0	120	12	-	102	545	645	-	-	53	10	-	-	-	11,400	11,400	1,530
4a.1.1.2	Reactor Coolant Pumps & HAD/S	2	10	1	0	23	-	-	26	79	79	-	-	84	1	-	-	-	2,600	2,600	300
4a.1.1.3	Pressurizer	19	82	120	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.4	Steam Generators	8	12	324	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.5	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.6	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.7	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.8	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.9	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.10	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.11	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.12	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.13	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.14	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.15	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.16	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.17	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.18	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.19	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.20	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.21	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.22	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.23	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.24	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.25	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.26	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.27	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.28	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.29	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.30	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.31	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.32	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.33	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.34	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.35	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.36	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.37	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.38	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.39	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.40	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.41	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.42	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.43	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.44	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.45	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.46	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.47	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.48	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.49	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.50	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.51	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.52	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.53	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.54	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.55	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.56	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.57	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.58	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.59	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.60	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.61	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.62	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048	-	-	374	7,504	-	-	-	3,600	3,600	1,796
4a.1.1.63	Reactor Vessel Internals	22	1,177	160	0	1,177	-	-	1,316	1,645	3,048										

Table D-1  
Oconee Nuclear Station - Unit 1  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt. Lbs.	Craft Manhours	Utility and Contractor Manhours
Disposal of Plant Systems (continued)																					
4a.1.5.27	Turbine Oil	-	121	-	-	-	-	-	18	139	-	-	139	-	-	-	-	-	-	3,518	-
4a.1.5.28	Vacuum	-	114	-	-	-	-	-	17	131	-	-	131	-	-	-	-	-	-	3,438	-
4a.1.5	Totals	-	3,804	107	190	7,015	61	-	1,853	13,031	10,682	-	2,349	77,114	312	-	-	-	3,159,660	105,638	-
4a.1.6	Scaffolding in support of decommissioning	-	393	8	2	44	5	-	107	559	559	-	-	433	27	-	-	-	21,916	12,302	-
4a.1	Subtotal Period 4a Activity Costs	160	14,190	6,303	2,496	8,672	47,041	317	22,766	101,946	99,597	-	2,349	86,202	47,177	3,325	517	440	9,821,414	225,231	3,275
Period 4a Collateral Costs																					
4a.3.1	Process liquid waste	19	-	8	25	-	38	-	23	113	113	-	-	-	144	-	-	-	8,653	28	-
4a.3.2	Small tool allowance	-	161	-	-	-	-	-	24	185	167	-	19	-	-	-	-	-	-	-	-
4a.3.3	Survey and Release of Scrap Metal	-	-	-	-	-	-	329	49	379	379	-	-	-	-	-	-	-	-	-	-
4a.3	Subtotal Period 4a Collateral Costs	19	161	8	25	-	38	329	97	677	658	-	19	-	144	-	-	-	8,653	28	-
Period 4a Period-Dependent Costs																					
4a.4.1	Decon supplies	61	-	-	-	-	-	-	15	77	77	-	-	-	-	-	-	-	-	-	-
4a.4.2	Insurance	-	-	-	-	-	-	364	35	401	401	-	-	-	-	-	-	-	-	-	-
4a.4.3	Property taxes	-	-	-	-	-	-	7	1	8	7	-	1	-	-	-	-	-	-	-	-
4a.4.4	Health physics supplies	-	1,463	-	-	-	-	-	366	1,829	1,829	-	-	-	-	-	-	-	-	-	-
4a.4.5	Heavy equipment rental	-	2,501	-	-	-	-	-	375	2,876	2,876	-	-	-	-	-	-	-	-	-	-
4a.4.6	Disposal of DAW generated	-	-	51	43	-	127	-	43	265	265	-	-	-	3,022	-	-	-	60,442	110	-
4a.4.7	Plant energy budget	-	-	-	-	-	-	1,430	214	1,644	1,644	-	-	-	-	-	-	-	-	-	-
4a.4.8	NRC Fees	-	-	-	-	-	-	746	75	823	823	-	-	-	-	-	-	-	-	-	-
4a.4.9	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	426	64	490	490	-	-	-	-	-	-	-	-	-	-
4a.4.10	Indirect Overhead	-	-	-	-	-	-	2,596	390	2,986	2,986	-	-	-	-	-	-	-	-	-	-
4a.4.11	Security Staff Cost	-	-	-	-	-	-	651	98	749	749	-	-	-	-	-	-	-	-	-	25,493
4a.4.12	Utility Staff Cost	-	-	-	-	-	-	24,664	3,703	28,366	28,366	-	-	-	-	-	-	-	-	-	433,971
4a.4	Subtotal Period 4a Period-Dependent Costs	61	3,965	51	43	-	127	30,909	5,380	40,537	40,536	-	1	-	3,022	-	-	-	60,442	110	459,464
4a.0	TOTAL PERIOD 4a COST	239	18,315	6,363	2,564	8,672	47,206	31,556	28,243	143,158	140,791	-	2,368	86,202	50,344	3,325	517	440	9,890,509	225,369	462,739
PERIOD 4b - Site Decontamination																					
Period 4b Direct Decommissioning Activities																					
4b.1.1	Remove spent fuel racks	278	32	122	58	-	476	-	289	1,269	1,269	-	-	-	2,450	-	-	-	219,804	956	-
Disposal of Plant Systems																					
4b.1.2.1	Component Cooling	-	47	-	-	-	-	-	7	54	-	-	54	-	-	-	-	-	-	1,374	-
4b.1.2.2	Component Cooling RCA	-	116	2	3	130	-	-	49	300	300	-	-	1,430	-	-	-	-	58,079	2,674	-
4b.1.2.3	Core Flood	-	87	3	3	192	-	-	54	351	351	-	-	2,110	-	-	-	-	65,968	2,358	-
4b.1.2.4	Electrical (Clean)	-	593	-	-	-	-	-	67	670	-	-	670	-	-	-	-	-	-	16,347	-
4b.1.2.5	Electrical (Contaminated)	-	169	3	5	143	6	-	67	364	364	-	-	1,571	42	-	-	-	67,969	4,111	-
4b.1.2.6	Electrical (Contaminated) RCA	-	1,194	20	36	1,381	-	-	513	3,143	3,143	-	-	15,179	-	-	-	-	616,410	28,392	-
4b.1.2.7	High Pressure Injection	-	787	110	163	2,313	745	-	756	4,885	4,885	-	-	25,429	3,812	-	-	-	1,314,364	19,605	-
4b.1.2.8	Incore Instrumentation	-	15	0	0	-	3	-	4	22	22	-	-	-	13	-	-	-	1,168	406	-
4b.1.2.9	Low Pressure Injection	-	456	35	35	763	256	-	387	1,850	1,850	-	-	8,280	1,314	-	-	-	450,780	11,500	-
4b.1.2.10	On-Site/Off-Site Power	-	34	-	-	-	-	-	14	108	-	-	108	-	-	-	-	-	-	2,517	-
4b.1.2.11	Purge	-	149	7	11	443	-	-	106	712	712	-	-	4,842	-	-	-	-	196,641	3,591	-
4b.1.2.12	RFS Refueling Water/	-	40	1	1	51	-	-	18	111	111	-	-	562	-	-	-	-	22,826	929	-
4b.1.2.13	Radiation Instrument Alarm	-	11	-	-	-	-	-	2	13	-	-	13	-	-	-	-	-	-	323	-
4b.1.2.14	Radiation Instrument Alarm RCA	-	29	0	0	6	-	-	8	42	42	-	-	63	-	-	-	-	2,565	788	-
4b.1.2.15	Reactor Building Cooling	-	345	26	11	1,705	-	-	351	2,471	2,471	-	-	15,745	-	-	-	-	761,247	8,761	-
4b.1.2.16	Reactor Coolant	-	206	11	17	66	6	-	7	508	508	-	-	2,343	51	-	-	-	2,777.6	5,353	-
4b.1.2.17	Reactor Coolant Storage	-	440	40	54	350	116	-	214	1,300	1,300	-	-	3,908	1,804	-	-	-	302,444	10,919	-
4b.1.2.18	Spent Fuel Cooling	-	216	16	25	226	110	-	111	755	755	-	-	2,552	597	-	-	-	169,090	5,349	-
4b.1.2.19	Ventilation (Clean)	-	172	-	-	-	-	-	26	195	-	-	195	-	-	-	-	-	-	5,376	-

Table D-1  
Oconee Nuclear Station - Unit 1  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Burial Volumes Cu. Feet	Class B Burial Volumes Cu. Feet	Class C Burial Volumes Cu. Feet	GTCC Cu. Feet	Burial Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Disposal of Plant Systems (continued)																					
4b.1.2.20	Ventilation (Contaminated)	-	516	12	22	853	-	-	262	1,655	1,655	-	-	8,382	-	-	-	-	381,513	11,488	-
4b.1.2.21	Ventilation (clean) RCA	-	242	-	12	448	-	-	130	838	838	-	-	4,925	-	-	-	-	200,000	4,619	-
4b.1.2	Totals	-	5,923	298	455	9,089	1,567	-	3,240	20,551	19,507	-	1,044	89,692	8,234	-	-	-	4,766,747	146,791	-
4b.1.3	Scaffolding in support of decommissioning	-	580	12	3	58	8	-	161	839	839	-	-	650	40	-	-	-	32,874	18,454	-
Decontamination of Site Buildings																					
4b.1.4.1	Reactor Building	675	667	171	254	424	947	-	860	3,996	3,998	-	-	4,658	10,211	-	-	-	894,565	31,331	-
4b.1.4.2	Auxiliary Building	272	34	26	37	57	53	-	189	727	727	-	-	629	1,439	-	-	-	124,416	8,853	-
4b.1.4.3	Turbine Building	202	21	5	8	-	11	-	111	357	357	-	-	-	314	-	-	-	21,708	5,669	-
4b.1.4.4	Fuel Building	176	181	4	5	83	8	-	152	619	619	-	-	916	128	-	-	-	46,231	8,672	-
4b.1.4	Totals	1,325	973	205	304	564	1,020	-	1,311	5,702	5,702	-	-	6,202	12,092	-	-	-	1,086,921	54,526	-
4b.1	Subtotal Period 4b Activity Costs	1,603	1,518	637	830	9,887	3,073	-	5,002	28,361	27,317	-	1,044	105,534	22,817	-	-	-	8,106,346	229,536	-
Period 4b Additional Costs																					
4b.2.1	Containment Paint Remediation	92	-	7	12	-	84	-	69	264	264	-	-	-	452	-	-	-	-	800	-
4b.2.2	License Termination Survey Management Program	-	-	-	-	-	-	616	185	801	801	-	-	-	-	-	-	-	-	-	6,240
4b.2	Subtotal Period 4b Additional Costs	92	-	7	12	-	84	616	254	1,065	1,065	-	-	-	452	-	-	-	-	800	6,240
Period 4b Collateral Costs																					
4b.3.1	Process liquid waste	49	-	23	68	-	101	-	62	304	304	-	-	-	389	-	-	-	23,320	76	-
4b.3.2	Small tool allowance	-	158	-	-	-	-	-	24	181	181	-	-	-	-	-	-	-	-	-	-
4b.3.3	Decommissioning Equipment Disposition	-	-	109	29	605	73	-	124	940	940	-	-	6,000	373	-	-	-	303,507	88	-
4b.3.4	Survey and Release of Scrap Metal	-	-	-	-	-	-	494	74	568	568	-	-	-	-	-	-	-	-	-	-
4b.3	Subtotal Period 4b Collateral Costs	49	158	132	98	605	174	494	264	1,994	1,994	-	-	6,000	762	-	-	-	326,826	164	-
Period 4b Period-Dependent Costs																					
4b.4.1	Decon supplies	738	-	-	-	-	-	-	184	922	922	-	-	-	-	-	-	-	-	-	-
4b.4.2	Insurance	-	-	-	-	-	-	413	41	454	454	-	-	-	-	-	-	-	-	-	-
4b.4.3	Property taxes	-	-	-	-	-	-	8	1	9	9	-	-	-	-	-	-	-	-	-	-
4b.4.4	Health physics supplies	-	1,459	-	-	-	-	-	365	1,824	1,824	-	-	-	-	-	-	-	-	-	-
4b.4.5	Heavy equipment rental	-	2,813	-	-	-	-	-	422	3,234	3,234	-	-	-	-	-	-	-	-	-	-
4b.4.6	Disposal of DAW generated	-	-	57	48	-	143	-	49	298	298	-	-	-	3,399	-	-	-	67,981	124	-
4b.4.7	Plant energy budget	-	-	-	-	-	-	1,278	192	1,470	1,470	-	-	-	-	-	-	-	-	-	-
4b.4.8	NRC Fees	-	-	-	-	-	-	847	85	932	932	-	-	-	-	-	-	-	-	-	-
4b.4.9	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	483	72	555	555	-	-	-	-	-	-	-	-	-	-
4b.4.10	Indirect Overhead	-	-	-	-	-	-	1,994	299	2,293	2,293	-	-	-	-	-	-	-	-	-	-
4b.4.11	Security Staff Cost	-	-	-	-	-	-	738	111	848	848	-	-	-	-	-	-	-	-	-	28,871
4b.4.12	Utility Staff Cost	-	-	-	-	-	-	18,453	3,768	21,221	21,221	-	-	-	-	-	-	-	-	-	333,029
4b.4	Subtotal Period 4b Period-Dependent Costs	738	4,272	57	48	-	143	24,214	4,589	34,061	34,061	-	-	-	3,399	-	-	-	67,981	124	361,900
4b.0	TOTAL PERIOD 4b COST	2,482	11,947	834	988	10,302	3,474	25,325	10,125	65,481	64,438	-	1,044	112,534	27,430	-	-	-	8,501,153	221,723	368,140
PERIOD 4d - Delay before License Termination																					
Period 4d Direct Decommissioning Activities																					
Period 4d Period-Dependent Costs																					
4d.4.1	Insurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4d.4.2	Property taxes	-	-	-	-	-	-	15	2	17	17	-	-	-	-	-	-	-	-	-	-
4d.4.3	Health physics supplies	-	193	-	-	-	-	-	48	242	242	-	-	-	-	-	-	-	-	-	-
4d.4.4	Disposal of DAW generated	-	-	4	-	-	19	-	3	20	20	-	-	-	235	-	-	-	4,659	8	-
4d.4.5	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4d.4.6	NRC Fees	-	-	-	-	-	-	426	43	469	469	-	-	-	-	-	-	-	-	-	-
4d.4.7	Indirect Overhead	-	-	-	-	-	-	204	31	235	235	-	-	-	-	-	-	-	-	-	-



Table D-1  
Oconee Nuclear Station - Unit 1  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt. Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 4d Period-Dependent Costs (continued)																					
4d.4.8	Security Staff Cost	-	-	-	-	-	-	6	1	7	7	-	-	-	-	-	-	-	-	-	14,623
4d.4.9	Utility Staff Cost	-	-	-	-	-	-	1,661	249	1,910	1,910	-	-	-	-	-	-	-	-	-	34,120
4d.4	Subtotal Period 4d Period-Dependent Costs	-	193	4	3	-	10	2,313	377	2,900	2,900	-	-	-	233	-	-	-	4,659	8	48,743
4d.0	TOTAL PERIOD 4d COST	-	193	4	3	-	10	2,313	377	2,900	2,900	-	-	-	233	-	-	-	4,659	8	48,743
PERIOD 4e - License Termination																					
Period 4e Direct Decommissioning Activities																					
4e.1.1	CRISE confirmatory survey	-	-	-	-	-	-	150	45	195	195	-	-	-	-	-	-	-	-	-	-
4e.1.2	Terminate license	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4e.1	Subtotal Period 4e Activity Costs	-	-	-	-	-	-	150	45	195	195	-	-	-	-	-	-	-	-	-	-
Period 4e Additional Costs																					
4e.2.1	License Termination Survey	-	-	-	-	-	-	5,445	1,633	7,078	7,078	-	-	-	-	-	-	-	-	135,747	3,120
4e.2	Subtotal Period 4e Additional Costs	-	-	-	-	-	-	5,445	1,633	7,078	7,078	-	-	-	-	-	-	-	-	135,747	3,120
Period 4e Period-Dependent Costs																					
4e.4.1	Insurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4e.4.2	Property taxes	-	-	-	-	-	-	5	0	5	5	-	-	-	-	-	-	-	-	-	-
4e.4.3	Health physics supplies	-	835	-	-	-	-	-	209	1,043	1,043	-	-	-	-	-	-	-	-	-	-
4e.4.4	Disposal of DAW generated	-	-	5	4	-	13	-	5	27	27	-	-	-	314	-	-	-	6,276	11	-
4e.4.5	Plant energy budget	-	-	-	-	-	-	199	30	229	229	-	-	-	-	-	-	-	-	-	-
4e.4.6	NRC Fees	-	-	-	-	-	-	530	53	583	583	-	-	-	-	-	-	-	-	-	-
4e.4.7	Indirect Overhead	-	-	-	-	-	-	412	62	474	474	-	-	-	-	-	-	-	-	-	-
4e.4.8	Security Staff Cost	-	-	-	-	-	-	121	18	140	140	-	-	-	-	-	-	-	-	-	4,697
4e.4.9	Utility Staff Cost	-	-	-	-	-	-	4,045	507	4,652	4,652	-	-	-	-	-	-	-	-	-	68,891
4e.4	Subtotal Period 4e Period-Dependent Costs	-	835	5	4	-	13	5,312	983	7,153	7,153	-	-	-	314	-	-	-	6,276	11	73,586
4e.0	TOTAL PERIOD 4e COST	-	835	5	4	-	13	10,907	2,662	14,426	14,426	-	-	-	314	-	-	-	6,276	135,758	76,709
PERIOD 4 TOTALS		2,721	31,591	7,206	3,562	18,974	20,704	73,100	41,410	229,966	222,555	-	3,412	200,736	78,320	3,325	517	440	16,402,600	582,859	956,330
PERIOD 5b - Site Restoration																					
Period 5b Direct Decommissioning Activities																					
Demolition of Remaining Site Buildings																					
5b.1.1.1	Reactor Building	-	4,114	-	-	-	-	-	617	4,731	-	-	4,731	-	-	-	-	-	-	53,465	-
5b.1.1.2	Auxiliary Building	-	926	-	-	-	-	-	124	950	-	-	950	-	-	-	-	-	-	12,019	-
5b.1.1.3	Turbine Building	-	1,762	-	-	-	-	-	264	2,026	-	-	2,026	-	-	-	-	-	-	31,130	-
5b.1.1.4	Turbine Pedestal	-	262	-	-	-	-	-	39	301	-	-	301	-	-	-	-	-	-	3,192	-
5b.1.1.5	Fuel Building	-	648	-	-	-	-	-	97	745	-	-	745	-	-	-	-	-	-	9,163	-
5b.1.1	Totals	-	7,611	-	-	-	-	-	1,142	8,753	-	-	8,753	-	-	-	-	-	-	108,963	-
Site Closeout Activities																					
5b.1.2	Grade & landscape site	-	112	-	-	-	-	-	17	129	-	-	129	-	-	-	-	-	-	250	-
5b.1.3	Final report to NRC	-	-	-	-	-	-	143	21	164	164	-	-	-	-	-	-	-	-	-	1,560
5b.1	Subtotal Period 5b Activity Costs	-	7,723	-	-	-	-	143	1,180	9,046	164	-	8,882	-	-	-	-	-	-	129,213	1,560
Period 5b Additional Costs																					
5b.2.1	Concrete Crushing	-	270	-	-	-	-	2	41	313	-	-	313	-	-	-	-	-	-	1,376	-
5b.2	Subtotal Period 5b Additional Costs	-	270	-	-	-	-	2	41	313	-	-	313	-	-	-	-	-	-	1,376	-
Period 5b Collateral Costs																					
5b.3.1	Small tool allowance	-	78	-	-	-	-	-	12	91	-	-	81	-	-	-	-	-	-	-	-

Table D-1  
Oconee Nuclear Station - Unit 1  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decom Cost	Removal Cost	Packaging Cost	Transport Cost	Off-Site Processing Cost	LLRW Disposal Cost	Other Costs	Total Contingency	Label Costs	NRC Lic. Term. Cost	Spent Fuel Management Costs	Site Remediation Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt. Lbs.	Craft Manhours	Utility and Contractor Manhours
5111	Subtotal Period Sb Collateral Costs	-	72	-	-	-	-	-	12	51	-	-	91	-	-	-	-	-	-	-	-
5111.01	Period Sb Collateral Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5111.01.01	Initial Work	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5111.01.02	Property Utilization	-	-	-	-	-	-	15	3	11	-	-	17	-	-	-	-	-	-	-	-
5111.01.03	Heavy equipment rental	-	5,752	-	-	-	-	-	1,039	1,039	-	-	7,511	-	-	-	-	-	-	-	-
5111.01.04	Plant emergency cleanup	-	-	-	-	-	-	109	109	109	-	-	351	-	-	-	-	-	-	-	-
5111.01.05	Initial Work	-	-	-	-	-	-	714	111	801	563	-	-	-	-	-	-	-	-	-	-
5111.01.06	Security Staff Cost	-	-	-	-	-	-	111	34	184	-	-	184	-	-	-	-	-	-	-	4,050
5111.01.07	Utility Staff Cost	-	-	-	-	-	-	604	1,032	7,921	-	-	7,821	-	-	-	-	-	-	-	129,420
5111.01.08	Subtotal Period Sb Collateral Costs	-	5,776	-	-	-	-	8,109	2,234	15,115	150	-	15,285	-	-	-	-	-	-	-	129,420
5111.02	TOTAL PERIOD Sb COLLAT.	-	5,776	-	-	-	-	8,109	1,467	25,584	1,511	-	25,570	-	-	-	-	-	-	1,111	131,010
5111.03	PERIOD 5 TOTALS	-	5,776	-	-	-	-	8,109	1,467	25,584	1,511	-	25,570	-	-	-	-	-	-	1,111	131,010
5111.04	TOTAL COST TO DECOMMISSION WITH 17.5% CONTINGENCY	5,776	5,776	7,011	4,111	14,974	14,974	14,974	50,689	58,567	500	54,675	20,011	200,736	1,111	1,325	1,111	440	17,234,340	804,154	4,631,551

TOTAL COST TO DECOMMISSION WITH 17.5% CONTINGENCY:	\$595,675 thousands of 2008 dollars
TOTAL NRC LICENSE TERMINATION COST IS 84.1% OR:	\$5,900,000 thousands of 2008 dollars
SPENT FUEL MANAGEMENT COST IS 10.36% OR:	\$64,675 thousands of 2008 dollars
NON-NUCLEAR DEMOLITION COST IS 5.04% OR:	\$10,011 thousands of 2008 dollars
TOTAL LOW/INTERMEDIATE RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC):	130,745 cubic feet
TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED:	440 cubic feet
TOTAL SCRAP METAL REMOVED:	40,139 tons
TOTAL CRAFT LABOR REQUIREMENTS:	785,051 man-hours

Notes:  
n1 - indicates that the bid is charged as decommissioning expense.  
n - indicates that the activity is performed by decommissioning staff.  
n - indicates that the value is less than 0.5 million dollars.  
n - indicates a zero value.

Table D-2  
Oconee Nuclear Station - Unit 2  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Estimated Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Out-of-Plant Costs	Initial Contingency	Total Cost	Net Present Value	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	Glass Cu. Feet	Buildings Processed WT, Lbs.	Craft Manhours	Utility Contractor Manhours
<b>PERIOD 10- Shutdown through Final Decommissioning</b>																					
<b>Period 10- O'Conor Decommissioning Activities</b>																					
10.1.1	SAFSTOR site characterization survey	-	-	-	-	-	-	381	114	495	19%	-	-	-	-	-	-	-	-	-	-
10.1.2	Prepare preliminary decommissioning cost	-	-	-	-	-	-	38	6	43	4%	-	-	-	-	-	-	-	-	-	125
10.1.3	Notification of Cessation of Operations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.1.4	Remove fuel & source material	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.1.5	Notification of Permanent Defueling	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.1.6	Deactivate plant systems & process waste	-	-	-	-	-	-	58	6	67	1%	-	-	-	-	-	-	-	-	-	156
10.1.7	Prepare and submit PSDAR	-	-	-	-	-	-	38	6	43	4%	-	-	-	-	-	-	-	-	-	596
10.1.8	Perform detailed rad survey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.1.10	Estimate by-product inventory	-	-	-	-	-	-	29	4	33	1%	-	-	-	-	-	-	-	-	-	428
10.1.11	End product disposition	-	-	-	-	-	-	26	4	33	1%	-	-	-	-	-	-	-	-	-	428
10.1.12	Detailed by-product inventory	-	-	-	-	-	-	43	7	50	5%	-	-	-	-	-	-	-	-	-	642
10.1.13	Define major work sequence	-	-	-	-	-	-	29	4	33	1%	-	-	-	-	-	-	-	-	-	428
10.1.14	Perform SER and EA	-	-	-	-	-	-	90	13	103	10%	-	-	-	-	-	-	-	-	-	1,327
10.1.15	Perform Site-Specific Cost Study	-	-	-	-	-	-	145	22	166	16%	-	-	-	-	-	-	-	-	-	2,140
<b>Activity Specific Costs</b>																					
10.1.16.1	Decontaminate facilities (excl. SAFSTOR)	-	-	-	-	-	-	142	21	164	16%	-	-	-	-	-	-	-	-	-	2,106
10.1.16.2	Plant systems	-	-	-	-	-	-	121	18	139	14%	-	-	-	-	-	-	-	-	-	1,753
10.1.16.3	Plant structures and buildings	-	-	-	-	-	-	90	14	104	10%	-	-	-	-	-	-	-	-	-	1,335
10.1.16.4	Waste management	-	-	-	-	-	-	58	9	67	6%	-	-	-	-	-	-	-	-	-	858
10.1.16.5	Facility utility dormancy	-	-	-	-	-	-	58	9	67	6%	-	-	-	-	-	-	-	-	-	858
10.1.16.6	Total	-	-	-	-	-	-	469	70	539	53%	-	-	-	-	-	-	-	-	-	6,936
<b>Detailed Work Breakdown</b>																					
10.1.17.1	Plant systems	-	-	-	-	-	-	34	5	39	3%	-	-	-	-	-	-	-	-	-	506
10.1.17.2	Facility disposal & dormancy	-	-	-	-	-	-	35	5	40	4%	-	-	-	-	-	-	-	-	-	514
10.1.17.3	Total	-	-	-	-	-	-	69	10	79	7%	-	-	-	-	-	-	-	-	-	1,020
10.1.18	Process waste, storage system	-	-	-	-	-	-	3	0	3	0%	-	-	-	-	-	-	-	-	-	33
10.1.19	Decontaminate non-core systems	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.1.20	Ordnance disposal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.1.21	Decontaminate chemical systems (excl. M)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.1.22	Decontaminate auxiliary systems	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10.1.23	Subtotal Period 10 Activity Costs	-	-	-	-	-	-	1,419	270	1,689	168%	-	-	-	-	-	-	-	-	-	53,311
<b>Period 10 Additional Costs</b>																					
10.2.1	Asbestos Remediation	-	2,759	-	283	-	2,164	-	1,273	6,481	64%	-	-	-	25,455	-	-	-	1,111,111	33,951	-
10.2.2	Subtotal Period 10 Additional Costs	-	2,759	-	283	-	2,164	-	1,273	6,481	64%	-	-	-	25,455	-	-	-	1,111,111	33,951	-
<b>Period 10 Collateral Costs</b>																					
10.3.1	Small tool allowance	-	42	-	-	-	-	-	6	48	4%	-	-	-	-	-	-	-	-	-	-
10.3.2	Spent Fuel Capital and Maintenance	-	-	-	-	-	-	695	104	800	8%	100	-	-	-	-	-	-	-	-	-
10.3.3	Subtotal Period 10 Collateral Costs	-	42	-	-	-	-	695	111	848	8%	100	-	-	-	-	-	-	-	-	-
<b>Period 10 Penalties and Other Costs</b>																					
10.4.1	Insurance	-	-	-	-	-	-	775	77	852	8%	-	-	-	-	-	-	-	-	-	-
10.4.2	Property tax	-	-	-	-	-	-	1,386	138	1,524	15%	-	-	-	-	-	-	-	-	-	-
10.4.3	Health physics supplies	-	586	-	-	-	-	-	147	733	7%	-	-	-	-	-	-	-	-	-	-
10.4.4	Heavy equipment rental	-	458	-	-	-	-	-	69	526	5%	-	-	-	-	-	-	-	-	-	-
10.4.5	Disposal of OAW and other waste	-	-	-	10	5	-	24	6	30	3%	-	-	-	521	-	-	-	11,111	-	-
10.4.6	Plant cleanup budget	-	-	-	-	-	-	1,324	199	1,522	15%	-	-	-	-	-	-	-	-	-	-
10.4.7	NRC Fees	-	-	-	-	-	-	471	47	518	5%	-	-	-	-	-	-	-	-	-	-

Table D-2  
Oconee Nuclear Station - Unit 2  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt. Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 1a Period-Dependent Costs (continued)																					
1a.4.8	Emergency Planning Fees	-	-	-	-	-	-	281	28	309	-	309	-	-	-	-	-	-	-	-	-
1a.4.9	FEMA Fees	-	-	-	-	-	-	126	19	145	145	-	-	-	-	-	-	-	-	-	-
1a.4.10	Spent Fuel Pool O&M	-	-	-	-	-	-	745	112	857	-	857	-	-	-	-	-	-	-	-	-
1a.4.11	Indirect Overhead	-	-	-	-	-	-	2,135	320	2,455	2,455	-	-	-	-	-	-	-	-	-	-
1a.4.12	Security Staff Cost	-	-	-	-	-	-	1,189	178	1,368	1,368	-	-	-	-	-	-	-	-	-	46,678
1a.4.13	Utility Staff Cost	-	-	-	-	-	-	16,239	2,888	22,125	22,125	-	-	-	-	-	-	-	-	-	356,657
1a.4	Subtotal Period 1a Period-Dependent Costs	-	1,044	10	8	-	24	27,671	4,228	32,885	31,819	1,166	-	-	571	-	-	-	11,419	21	403,335
1a.0	TOTAL PERIOD 1a COST	-	3,845	11	291	-	2,158	29,786	5,882	42,003	40,037	1,966	-	-	28,026	-	-	-	342,334	35,472	418,696
PERIOD 1b - SAFSTOR Limited DECON Activities																					
Period 1b Direct Decommissioning Activities																					
Decontamination of Site Buildings																					
1b.1.1.1	Reactor Building	759	-	-	-	-	-	-	379	1,138	1,138	-	-	-	-	-	-	-	-	19,093	-
1b.1.1.2	Auxiliary Building	297	-	-	-	-	-	-	148	445	445	-	-	-	-	-	-	-	-	7,865	-
1b.1.1.3	Turbine Building	294	-	-	-	-	-	-	102	305	305	-	-	-	-	-	-	-	-	5,402	-
1b.1.1.4	Fuel Building	301	-	-	-	-	-	-	100	301	301	-	-	-	-	-	-	-	-	4,427	-
1b.1.1	Totals	1,450	-	-	-	-	-	-	730	2,190	2,190	-	-	-	-	-	-	-	-	36,787	-
1b.1	Subtotal Period 1b Activity Costs	1,450	-	-	-	-	-	-	730	2,190	2,190	-	-	-	-	-	-	-	-	36,787	-
Period 1b Additional Costs																					
1b.2.1	Spent Fuel Pool Isolation	-	-	-	-	-	-	4,704	705	5,409	5,409	-	-	-	-	-	-	-	-	-	-
1b.2	Subtotal Period 1b Additional Costs	-	-	-	-	-	-	4,704	705	5,409	5,409	-	-	-	-	-	-	-	-	-	-
Period 1b Collateral Costs																					
1b.3.1	Decon equipment	863	-	-	-	-	-	-	132	1,016	1,016	-	-	-	-	-	-	-	-	-	-
1b.3.2	Process liquid waste	97	-	39	117	-	172	-	113	538	538	-	-	-	551	-	-	-	39,678	129	-
1b.3.3	Small tool allowance	-	20	-	-	-	-	-	14	30	30	-	-	-	-	-	-	-	-	-	-
1b.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	87	13	100	-	100	-	-	-	-	-	-	-	-	-
1b.3	Subtotal Period 1b Collateral Costs	960	20	39	117	-	172	87	262	1,683	1,683	100	-	-	551	-	-	-	39,678	129	-
Period 1b Period-Dependent Costs																					
1b.4.1	Decon supplies	678	-	-	-	-	-	-	170	848	848	-	-	-	-	-	-	-	-	-	-
1b.4.2	Insurance	-	-	-	-	-	-	195	20	215	215	-	-	-	-	-	-	-	-	-	-
1b.4.3	Property taxes	-	-	-	-	-	-	342	34	376	376	-	-	-	-	-	-	-	-	-	-
1b.4.4	Health physics supplies	-	267	-	-	-	-	-	57	334	334	-	-	-	-	-	-	-	-	-	-
1b.4.5	Heavy equipment rental	-	115	-	-	-	-	-	17	133	133	-	-	-	-	-	-	-	-	-	-
1b.4.6	Disposal of DAW generated	-	-	9	8	-	23	-	8	47	47	-	-	-	539	-	-	-	10,771	20	-
1b.4.7	Plant energy budget	-	-	-	-	-	-	334	50	384	384	-	-	-	-	-	-	-	-	-	-
1b.4.8	NRC Fees	-	-	-	-	-	-	119	12	131	131	-	-	-	-	-	-	-	-	-	-
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	71	7	78	-	78	-	-	-	-	-	-	-	-	-
1b.4.10	FEMA Fees	-	-	-	-	-	-	32	5	37	37	-	-	-	-	-	-	-	-	-	-
1b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	188	28	216	-	216	-	-	-	-	-	-	-	-	-
1b.4.12	Indirect Overhead	-	-	-	-	-	-	538	81	619	619	-	-	-	-	-	-	-	-	-	-
1b.4.13	Security Staff Cost	-	-	-	-	-	-	300	45	345	345	-	-	-	-	-	-	-	-	-	11,765
1b.4.14	Utility Staff Cost	-	-	-	-	-	-	4,849	727	5,577	5,577	-	-	-	-	-	-	-	-	-	89,897
1b.4	Subtotal Period 1b Period-Dependent Costs	678	382	9	8	-	23	6,967	1,270	9,337	9,043	294	-	-	539	-	-	-	10,771	20	101,663
1b.0	TOTAL PERIOD 1b COST	3,118	408	48	124	-	195	11,758	2,968	18,619	16,225	394	-	-	1,200	-	-	-	50,449	36,935	101,663

Table D-2  
Oconee Nuclear Station - Unit 2  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				GTCC Cu. Feet	Burial / Processed Wt. Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet					
PERIOD 1c - Preparations for SAFSTOR Dormancy																						
Period 1c Direct Decommissioning Activities																						
1c.1.1	Prepare support equipment for storage	-	388	-	-	-	-	-	58	446	446	-	-	-	-	-	-	-	-	-	3,000	-
1c.1.2	Install containment pressure equal. lines	-	32	-	-	-	-	-	5	36	36	-	-	-	-	-	-	-	-	-	700	-
1c.1.3	Interim survey prior to dormancy	-	-	-	-	-	-	733	220	953	953	-	-	-	-	-	-	-	-	-	14,101	-
1c.1.4	Secure building accesses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1c.1.5	Prepare & submit interim report	-	-	-	-	-	-	17	3	19	19	-	-	-	-	-	-	-	-	-	-	250
1c.1	Subtotal Period 1c Activity Costs	-	420	-	-	-	-	750	285	1,455	1,455	-	-	-	-	-	-	-	-	-	17,801	250
Period 1c Collateral Costs																						
1c.3.1	Process liquid waste	115	-	47	140	-	206	-	135	645	645	-	-	-	793	-	-	-	-	47,568	155	-
1c.3.2	Small tool allowance	-	3	-	-	-	-	-	0	4	4	-	-	-	-	-	-	-	-	-	-	-
1c.3.3	Spent Fuel Capital and Transfer	-	-	-	-	-	-	75	11	87	-	87	-	-	-	-	-	-	-	-	-	-
1c.3	Subtotal Period 1c Collateral Costs	115	3	47	140	-	206	75	147	735	648	87	-	-	793	-	-	-	-	47,568	155	-
Period 1c Period-Dependent Costs																						
1c.4.1	Insurance	-	-	-	-	-	-	195	20	215	215	-	-	-	-	-	-	-	-	-	-	-
1c.4.2	Property taxes	-	-	-	-	-	-	233	23	257	257	-	-	-	-	-	-	-	-	-	-	-
1c.4.3	Health physics supplies	-	185	-	-	-	-	-	47	233	233	-	-	-	-	-	-	-	-	-	-	-
1c.4.4	Heavy equipment rental	-	115	-	-	-	-	-	17	133	133	-	-	-	-	-	-	-	-	-	-	-
1c.4.5	Disposal of DAW generated	-	-	2	2	-	6	-	2	13	13	-	-	-	144	-	-	-	-	2,878	5	-
1c.4.6	Plant energy budget	-	-	-	-	-	-	334	50	384	384	-	-	-	-	-	-	-	-	-	-	-
1c.4.7	NRC Fees	-	-	-	-	-	-	119	12	131	131	-	-	-	-	-	-	-	-	-	-	-
1c.4.8	Emergency Planning Fees	-	-	-	-	-	-	71	7	78	-	78	-	-	-	-	-	-	-	-	-	-
1c.4.9	FEMA Fees	-	-	-	-	-	-	32	5	37	37	-	-	-	-	-	-	-	-	-	-	-
1c.4.10	Spent Fuel Pictl O&M	-	-	-	-	-	-	185	28	216	-	216	-	-	-	-	-	-	-	-	-	-
1c.4.11	Indirect Overhead	-	-	-	-	-	-	538	81	619	619	-	-	-	-	-	-	-	-	-	-	-
1c.4.12	Security Staff Cost	-	-	-	-	-	-	300	45	345	345	-	-	-	-	-	-	-	-	-	-	11,765
1c.4.13	Utility Staff Cost	-	-	-	-	-	-	4,849	727	5,577	5,577	-	-	-	-	-	-	-	-	-	-	89,897
1c.4	Subtotal Period 1c Period-Dependent Costs	-	301	2	2	-	6	5,859	1,064	8,235	7,941	294	-	-	144	-	-	-	-	2,878	5	101,663
1c.0	TOTAL PERIOD 1c COST	115	724	49	142	-	213	7,684	1,496	10,425	10,044	381	-	-	937	-	-	-	-	50,446	17,961	101,912
PERIOD 1 TOTALS		2,235	4,877	105	557	-	2,595	49,228	10,347	71,047	68,307	2,740	-	-	28,163	-	-	-	-	443,230	90,368	622,271
PERIOD 2a - SAFSTOR Dormancy with Wet Spent Fuel Storage																						
Period 2a Direct Decommissioning Activities																						
2a.1.1	Quarterly inspection	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.1.2	Semi-annual environmental survey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.1.3	Prepare reports	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2a.1.4	Bituminous roof replacement	-	-	-	-	-	-	230	34	264	264	-	-	-	-	-	-	-	-	-	-	-
2a.1.5	Maintenance supplies	-	-	-	-	-	-	1,287	322	1,608	1,608	-	-	-	-	-	-	-	-	-	-	-
2a.1	Subtotal Period 2a Activity Costs	-	-	-	-	-	-	1,516	396	1,872	1,872	-	-	-	-	-	-	-	-	-	-	-
Period 2a Collateral Costs																						
2a.3.1	Spent Fuel Capital and Transfer	-	-	-	-	-	-	3,215	482	3,697	-	3,697	-	-	-	-	-	-	-	-	-	-
2a.3	Subtotal Period 2a Collateral Costs	-	-	-	-	-	-	3,215	482	3,697	-	3,697	-	-	-	-	-	-	-	-	-	-
Period 2a Period-Dependent Costs																						
2a.4.1	Insurance	-	-	-	-	-	-	3,779	328	3,607	3,132	475	-	-	-	-	-	-	-	-	-	-
2a.4.2	Property taxes	-	-	-	-	-	-	3,961	396	4,357	73	4,284	-	-	-	-	-	-	-	-	-	-
2a.4.3	Health physics supplies	-	549	-	-	-	-	-	237	1,187	1,187	-	-	-	-	-	-	-	-	-	-	-
2a.4.4	Disposal of DAW generated	-	-	5	5	-	155	-	57	350	350	-	-	-	3,991	-	-	-	-	79,811	145	-



Table D-2  
Oconee Nuclear Station - Unit 2  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	On-con Cost	Per Month Cost	Packaging Costs	Transport Costs	Off-site Processing Costs	ILRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Fee Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Ft.	Class A Cu. Feet	Class B Cu. Ft.	Class C Cu. Feet	G1C6 Cu. Feet	Burial/ Processed Vol. Lbs.	Weight Manhours	Unburied Contactor
Period 2a Period-Dependent Costs (continued)																					
2a.4.5	Plant energy budget	-	-	-	-	-	-	2,710	406	3,116	1,058	0	-	-	-	-	-	-	-	-	
2a.4.6	RFV Fees	-	-	-	-	-	-	1,829	81	2,012	0	0	-	-	-	-	-	-	-	-	
2a.4.7	Emergency Planning funds	-	-	-	-	-	-	211	38	1,182	-	3,183	-	-	-	-	-	-	-	-	
2a.4.8	SDRM Fuel Pool UTM	-	-	-	-	-	-	1,114	1,114	2,228	-	8,114	-	-	-	-	-	-	-	-	
2a.4.9	Indirect Overhead	-	-	-	-	-	-	2,611	396	3,007	588	2,450	-	-	-	-	-	-	-	-	
2a.4.10	Site Safety Staff Costs	-	-	-	-	-	-	13,444	2,617	16,061	5,315	10,142	-	-	-	-	-	-	-	431,657	
2a.4.11	Utility Staff Costs	-	-	-	-	-	-	26,112	9,668	35,780	46,710	21,857	-	-	-	-	-	-	-	491,275	
2a.4.12	Subtotal Period 2a Period-Dependent Costs	-	649	57	57	-	118	14,121	14,121	33,784	18,637	51,446	-	-	3,991	-	-	-	79,817	145	894,932
2a.0	TOTAL PERIOD 2a COST	-	649	57	57	-	118	14,121	14,121	33,784	18,637	51,446	-	-	3,991	-	-	-	79,817	145	894,932
PERIOD 2b - SAFSTOR Dorming with DIY Spent Fuel Storage																					
Period 2b Direct Decommissioning Activities																					
2b.1.1	Quarterly inspection	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	
2b.1.2	Semi-annual environmental support	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	
2b.1.3	Prepare reports	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2b.1.4	Bituminous roof replacement	-	-	-	-	-	-	103	1	118	118	-	-	-	-	-	-	-	-	-	
2b.1.5	Maintenance supplies	-	-	-	-	-	-	27	111	721	721	-	-	-	-	-	-	-	-	-	
2b.1	Subtotal Period 2b Activity Costs	-	-	-	-	-	-	230	112	890	839	-	-	-	-	-	-	-	-	-	
Period 2b Collateral Costs																					
2b.2.1	Spent Fuel Casks and Transport	-	-	-	-	-	-	406	51	457	-	401	-	-	-	-	-	-	-	-	
2b.2	Subtotal Period 2b Collateral Costs	-	-	-	-	-	-	406	51	457	-	401	-	-	-	-	-	-	-	-	
Period 2b Period-Dependent Costs																					
2b.3.1	Insurance	-	-	-	-	-	-	1,322	132	1,454	1,454	45	-	-	-	-	-	-	-	-	
2b.3.2	Property taxes	-	-	-	-	-	-	12	3	15	15	-	-	-	-	-	-	-	-	-	
2b.3.3	Health physics support	-	-	-	-	-	-	-	82	462	462	-	-	-	-	-	-	-	-	-	
2b.3.4	Emergency plan DAW generated	-	-	-	-	-	-	-	24	199	199	-	-	-	1,698	-	-	-	31,852	52	-
2b.3.5	Plant energy budget	-	-	-	-	-	-	612	11	699	699	-	-	-	-	-	-	-	-	-	
2b.3.6	NRC Fees	-	-	-	-	-	-	85	62	147	147	-	-	-	-	-	-	-	-	-	
2b.3.7	Emergency planning fees	-	-	-	-	-	-	11	1	12	12	168	-	-	-	-	-	-	-	-	
2b.3.8	Indirect Overhead	-	-	-	-	-	-	1,111	1	1,112	264	1,121	-	-	-	-	-	-	-	-	
2b.3.9	Security Staff Costs	-	-	-	-	-	-	3,048	1,375	3,405	3,405	112,111	-	-	-	-	-	-	-	194	-
2b.3.10	Utility Staff Costs	-	-	-	-	-	-	1,163	271	1,434	2,014	-	-	-	-	-	-	-	-	38,306	-
2b.3	Subtotal Period 2b Period-Dependent Costs	-	10	29	29	-	12	6,034	1,501	8,710	8,710	113,885	-	-	1,698	-	-	-	33,852	62	124,503
2b.0	TOTAL PERIOD 2b COST	-	370	29	29	-	72	9,100	1,613	11,017	9,549	113,885	-	-	1,698	-	-	-	33,852	62	124,503
PERIOD 2c - SAFSTOR Dorming without Spent Fuel Storage																					
Period 2c Direct Decommissioning Activities																					
2c.1.1	Quarterly inspection	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	
2c.1.2	Semi-annual environmental support	-	-	-	-	-	-	-	-	-	8	-	-	-	-	-	-	-	-	-	
2c.1.3	Prepare reports	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2c.1.4	Bituminous roof replacement	-	-	-	-	-	-	834	125	959	959	-	-	-	-	-	-	-	-	-	
2c.1.5	Maintenance supplies	-	-	-	-	-	-	27	116	501	501	-	-	-	-	-	-	-	-	-	
2c.1	Subtotal Period 2c Activity Costs	-	-	-	-	-	-	501	1,233	6800	5000	-	-	-	-	-	-	-	-	-	
Period 2c Period-Dependent Costs																					
2c.2.1	Insurance	-	-	-	-	-	-	1,142	1,034	11,376	11,376	-	-	-	-	-	-	-	-	-	
2c.2.2	Property taxes	-	-	-	-	-	-	11	24	265	265	-	-	-	-	-	-	-	-	-	
2c.2.3	Health physics support	-	23,984	-	-	-	-	-	749	3,743	3,743	-	-	-	-	-	-	-	-	-	
2c.2.4	Emergency plan DAW generated	-	-	-	-	-	-	-	667	1,704	1,704	-	-	-	11,747	-	-	-	274,551	511	-
2c.2.5	Plant energy budget	-	-	-	-	-	-	4,921	438	5,359	5,359	-	-	-	-	-	-	-	-	-	

SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

2c Period-Dependent Costs (Period-Dependent Costs)												
2c.4.6	NR Re-Mid	-	-	-	-	6,341	614	6,955	-	-	-	-
2c.4.7	NR Re-Mid	-	-	-	-	1,800	2,135	2,135	-	-	-	-
2c.4.8	Security Staff Cost	-	-	-	-	86,784	2,518	19,301	-	-	-	387,857
2c.4.9	Utility Staff Cost	-	-	-	-	14,888	2,180	16,788	-	-	-	318,761
2c.4	Period-Dependent Costs	-	2,994	232	195	100,013	8,362	57,416	-	-	12,167	697,783
2c.0	ICM Total Period-Dependent Costs	-	2,994	232	195	580	60,590	74,246	-	-	13,141	697,783
PERIOD 2 TOTALS		-	4,113	328	213	511	137,342	2,100,106	1,101,601	59,848	16,436	7,117,218
PERIOD 3a - Reactivate Site Following SAFSTOR Dormancy												
Period 3a Reactivate Decommissioning Activities												
3a.1.1	Re-activate plant & (6) Dry facilities	-	-	-	-	-	-	-	-	-	-	-
3a.1.2	Re-activate plant & (6) Dry facilities	-	-	-	-	38	6	43	-	-	-	-
3a.1.3	Re-activate plant & (6) Dry facilities	-	-	-	-	121	20	141	-	-	-	-
3a.1.4	Re-activate plant & (6) Dry facilities	-	-	-	-	-	-	-	-	-	-	-
3a.1.5	Re-activate plant & (6) Dry facilities	-	-	-	-	29	4	33	-	-	-	-
3a.1.6	Re-activate plant & (6) Dry facilities	-	-	-	-	11	2	13	-	-	-	-
3a.1.7	Re-activate plant & (6) Dry facilities	-	-	-	-	4	1	5	-	-	-	-
3a.1.8	Re-activate plant & (6) Dry facilities	-	-	-	-	6	1	7	-	-	-	-
3a.1.9	Re-activate plant & (6) Dry facilities	-	-	-	-	36	6	42	-	-	-	-
3a.1.10	Re-activate plant & (6) Dry facilities	-	-	-	-	11	2	13	-	-	-	-
3a.1.11	Re-activate plant & (6) Dry facilities	-	-	-	-	90	15	105	-	-	-	-
3a.1.12	Re-activate plant & (6) Dry facilities	-	-	-	-	16	3	19	-	-	-	-
3a.1	Period 3a Reactivate Decommissioning Activities	-	-	-	-	712	79	791	-	-	-	-
Activity Specifications												
3a.1.1.1	Re-activate plant & (6) Dry facilities	-	-	-	-	213	32	245	-	25	-	-
3a.1.1.2	Plant systems	-	-	-	-	121	18	139	-	14	-	-
3a.1.1.3	Reactor internals	-	-	-	-	206	31	236	-	-	-	-
3a.1.1.4	Reactor vessel	-	-	-	-	151	22	173	-	-	-	-
3a.1.1.5	Biological shield	-	-	-	-	89	14	104	-	-	-	-
3a.1.1.6	Steam generators	-	-	-	-	48	7	55	-	27	-	-
3a.1.1.7	Reinforced concrete	-	-	-	-	12	2	14	-	13	-	-
3a.1.1.8	Main Turbine	-	-	-	-	12	2	14	-	13	-	-
3a.1.1.9	Main Condensers	-	-	-	-	90	14	104	-	52	-	-
3a.1.1.10	Plant structures & buildings	-	-	-	-	133	21	154	-	-	-	-
3a.1.1.11	Waste management	-	-	-	-	26	4	30	-	15	-	-
3a.1.1.12	Facility & site closure	-	-	-	-	1,151	173	1,324	-	159	-	-
3a.1	Total	-	-	-	-	-	-	-	-	-	-	-
Planning & Site Preparations												
3a.1.1.2	Prepare dismantling sequence	-	-	-	-	80	10	90	-	-	-	-
3a.1.1.3	Plant prep & temp. svcs	-	-	-	-	2,100	405	2,505	-	-	-	-
3a.1.1.4	Design water clean-up system	-	-	-	-	41	6	47	-	-	-	-
3a.1.1.5	Rigging/Cont. Critl Envir/cooling/etc	-	-	-	-	2,100	315	2,415	-	-	-	-
3a.1.1.6	Procure casks/liners & containers	-	-	-	-	36	5	41	-	-	-	-
3a.1	Subtotal Period 3a Activity Costs	-	-	-	-	5,911	7,036	7,782	-	159	-	-
Period 3a Additional Costs												
3a.1.1	018 Characterization Study	-	-	-	-	3,300	376	3,676	-	-	-	-
3a.1.2	Subtotal Period 3a Additional Costs	-	-	-	-	3,300	376	3,676	-	-	-	-
Period 3a Period-Dependent Costs												
3a.1.1	018 Characterization Study	-	-	-	-	3,300	376	3,676	-	-	-	-
3a.1.2	Subtotal Period 3a Period-Dependent Costs	-	-	-	-	3,300	376	3,676	-	-	-	-
Period 3a Period-Dependent Costs												
3a.1.1	018 Characterization Study	-	-	-	-	3,300	376	3,676	-	-	-	-
3a.1.2	Subtotal Period 3a Period-Dependent Costs	-	-	-	-	3,300	376	3,676	-	-	-	-
Period 3a Period-Dependent Costs												
3a.1.1	018 Characterization Study	-	-	-	-	3,300	376	3,676	-	-	-	-
3a.1.2	Subtotal Period 3a Period-Dependent Costs	-	-	-	-	3,300	376	3,676	-	-	-	-

Table D-2  
Oconee Nuclear Station - Unit 2  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt. Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 3a Period-Dependent Costs (continued)																					
3a.4.4	Heavy equipment rental	-	458	-	-	-	-	-	69	526	526	-	-	-	-	-	-	-	-	-	-
3a.4.5	Disposal of DAW generated	-	-	9	-	-	20	-	7	42	42	-	-	-	481	-	-	-	9,613	18	-
3a.4.6	Plant energy budget	-	-	-	-	-	-	1,324	199	1,522	1,522	-	-	-	-	-	-	-	-	-	-
3a.4.7	NRC Fees	-	-	-	-	-	-	214	21	236	236	-	-	-	-	-	-	-	-	-	-
3a.4.8	Indirect Overhead	-	-	-	-	-	-	1,195	180	1,378	1,378	-	-	-	-	-	-	-	-	-	-
3a.4.9	Security Staff Cost	-	-	-	-	-	-	182	24	186	186	-	-	-	-	-	-	-	-	-	6,257
3a.4.10	Utility Staff Cost	-	-	-	-	-	-	10,709	1,606	12,315	12,315	-	-	-	-	-	-	-	-	-	200,229
3a.4	Subtotal Period 3a Period-Dependent Costs	-	838	9	9	-	20	13,892	2,230	16,995	16,995	-	-	-	481	-	-	-	9,613	18	206,486
3a.0	TOTAL PERIOD 3a COST	-	838	9	9	-	20	22,048	3,641	26,563	26,404	-	159	-	481	-	-	-	9,613	8,185	240,960
PERIOD 3b - Decommissioning Preparations																					
Period 3b Direct Decommissioning Activities																					
Detailed Work Procedures																					
3b.1.1.1	Plant systems	-	-	-	-	-	-	185	28	213	192	-	21	-	-	-	-	-	-	-	2,026
3b.1.1.2	Reactor internals	-	-	-	-	-	-	98	15	113	113	-	-	-	-	-	-	-	-	-	1,070
3b.1.1.3	Remaining buildings	-	-	-	-	-	-	53	6	61	15	-	46	-	-	-	-	-	-	-	578
3b.1.1.4	CRD cooling assembly	-	-	-	-	-	-	39	5	45	45	-	-	-	-	-	-	-	-	-	428
3b.1.1.5	CRD housings & ICI tubes	-	-	-	-	-	-	39	5	45	45	-	-	-	-	-	-	-	-	-	428
3b.1.1.6	Incore instrumentation	-	-	-	-	-	-	39	5	45	45	-	-	-	-	-	-	-	-	-	428
3b.1.1.7	Reactor vessel	-	-	-	-	-	-	142	21	164	164	-	-	-	-	-	-	-	-	-	1,554
3b.1.1.8	Facility closeout	-	-	-	-	-	-	47	7	54	27	-	27	-	-	-	-	-	-	1	514
3b.1.1.9	Mass shields	-	-	-	-	-	-	16	3	20	20	-	-	-	-	-	-	-	-	-	193
3b.1.1.10	Biological shield	-	-	-	-	-	-	47	7	54	54	-	-	-	-	-	-	-	-	-	514
3b.1.1.11	Steam generators	-	-	-	-	-	-	180	27	207	207	-	-	-	-	-	-	-	-	-	1,969
3b.1.1.12	Reinforced concrete	-	-	-	-	-	-	39	6	45	23	-	23	-	-	-	-	-	-	-	428
3b.1.1.13	Main Turbine	-	-	-	-	-	-	61	9	70	-	-	70	-	-	-	-	-	-	-	668
3b.1.1.14	Main Condensers	-	-	-	-	-	-	61	9	70	-	-	70	-	-	-	-	-	-	-	668
3b.1.1.15	Auxiliary building	-	-	-	-	-	-	107	16	123	111	-	12	-	-	-	-	-	-	-	1,168
3b.1.1.16	Reactor building	-	-	-	-	-	-	107	16	123	111	-	12	-	-	-	-	-	-	-	1,168
3b.1.1	Total	-	-	-	-	-	-	1,263	189	1,452	1,171	-	282	-	-	-	-	-	-	-	13,800
3b.1	Subtotal Period 3b Activity Costs	-	-	-	-	-	-	1,263	189	1,452	1,171	-	282	-	-	-	-	-	-	-	13,800
Period 3b Collateral Costs																					
3b.3.1	Decon equipment	883	-	-	-	-	-	-	132	1,016	1,016	-	-	-	-	-	-	-	-	-	-
3b.3.2	Pipe cutting equipment	-	1,000	-	-	-	-	-	150	1,150	1,150	-	-	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	883	1,000	-	-	-	-	-	282	2,166	2,166	-	-	-	-	-	-	-	-	-	-
Period 3b Period-Dependent Costs																					
3b.4.1	Decon supplies	27	-	-	-	-	-	-	7	34	34	-	-	-	-	-	-	-	-	-	-
3b.4.2	Insurance	-	-	-	-	-	-	160	16	176	176	-	-	-	-	-	-	-	-	-	-
3b.4.3	Property taxes	-	-	-	-	-	-	3	0	4	4	-	-	-	-	-	-	-	-	-	-
3b.4.4	Health physics supplies	-	203	-	-	-	-	-	51	253	253	-	-	-	-	-	-	-	-	-	-
3b.4.5	Heavy equipment rental	-	228	-	-	-	-	-	34	262	262	-	-	-	-	-	-	-	-	-	-
3b.4.6	Disposal of DAW generated	-	-	4	4	-	11	-	4	23	23	-	-	-	261	-	-	-	5,214	9	-
3b.4.7	Plant energy budget	-	-	-	-	-	-	660	99	759	759	-	-	-	-	-	-	-	-	-	-
3b.4.8	NRC Fees	-	-	-	-	-	-	107	11	118	118	-	-	-	-	-	-	-	-	-	-
3b.4.9	Indirect Overhead	-	-	-	-	-	-	815	122	938	938	-	-	-	-	-	-	-	-	-	-
3b.4.10	Security Staff Cost	-	-	-	-	-	-	81	12	93	93	-	-	-	-	-	-	-	-	-	3,120
3b.4.11	Utility Staff Cost	-	-	-	-	-	-	7,518	1,128	8,646	8,646	-	-	-	-	-	-	-	-	-	136,240
3b.4	Subtotal Period 3b Period-Dependent Costs	27	431	4	4	-	11	8,344	1,483	11,304	11,304	-	-	-	261	-	-	-	5,214	9	139,360
3b.0	TOTAL PERIOD 3b COST	910	1,431	4	4	-	11	10,807	1,955	14,922	14,641	-	282	-	261	-	-	-	5,214	9	153,160

Table D-2  
Oconee Nuclear Station - Unit 2  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				GTCC Cu. Feet	Burial / Processed Wt. Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet					
PERIOD 3 TOTALS		910	2,269	13	11	-	31	32,655	5,596	41,485	41,045	-	440	-	741	-	-	-	14,825	8,194	394,120	
PERIOD 4a - Large Component Removal																						
Period 4a Direct Decommissioning Activities																						
Nuclear Steam Supply System Removal																						
4a.1.1.1	Reactor Coolant Piping	28	138	16	16	120	127	-	102	545	545	-	-	483	483	-	-	-	111,944	3,930	-	
4a.1.1.2	Pressurizer Relief Tank	3	10	3	3	23	23	-	14	79	79	-	-	84	84	-	-	-	20,849	333	-	
4a.1.1.3	Reactor Coolant Pumps & Motors	22	69	40	287	143	2,312	-	575	3,548	3,548	-	-	498	8,997	-	-	-	824,389	4,062	-	
4a.1.1.4	Pressurizer	6	45	324	-	-	1,177	-	341	1,894	1,894	-	-	-	1,847	-	-	-	107,604	1,796	-	
4a.1.1.5	Steam Generators	25	1,617	671	350	-	11,288	-	3,478	18,031	18,031	-	-	-	12,866	-	-	-	1,810,770	10,254	750	
4a.1.1.6	Retired Steam Generator Units	-	-	671	760	-	11,288	-	3,003	15,722	15,722	-	-	-	12,866	-	-	-	1,810,770	5,400	750	
4a.1.1.7	CRDMs/CDUs/Service Structure Removal	24	72	235	42	31	134	-	101	660	660	-	-	374	3,093	-	-	-	75,534	2,221	-	
4a.1.1.8	Reactor Vessel Internals	55	1,826	3,050	280	-	4,623	155	4,567	14,568	14,568	-	-	-	1,263	751	517	-	284,435	18,883	887	
4a.1.1.9	Vessel & Internals GTCC Disposal	-	-	-	-	-	9,748	-	1,462	11,212	11,212	-	-	-	-	-	-	440	79,640	-	-	
4a.1.1.10	Reactor Vessel	-	3,899	913	95	-	5,647	189	5,523	18,236	18,236	-	-	-	6,862	2,573	-	-	961,005	18,883	887	
4a.1.1	Totals	163	7,874	5,923	2,273	315	47,368	317	20,258	84,493	84,493	-	-	1,449	48,331	3,325	517	440	6,086,948	65,763	3,275	
Removal of Major Equipment																						
4a.1.2	Main Turbine/Generator	-	263	175	28	765	-	-	202	1,434	1,434	-	-	4,020	-	-	-	-	341,722	6,563	-	
4a.1.3	Main Condensers	-	802	91	14	535	-	-	292	1,733	1,733	-	-	5,310	-	-	-	-	238,934	20,501	-	
Cascading Costs from Clean Building Demolition																						
4a.1.4.1	Reactor Building	-	710	-	-	-	-	-	106	816	816	-	-	-	-	-	-	-	-	8,379	-	
4a.1.4.2	Auxiliary Building	-	92	-	-	-	-	-	14	105	105	-	-	-	-	-	-	-	-	1,333	-	
4a.1.4.3	Turbine Building	-	165	-	-	-	-	-	23	179	179	-	-	-	-	-	-	-	-	2,697	-	
4a.1.4.4	Fuel Building	-	70	-	-	-	-	-	10	80	80	-	-	-	-	-	-	-	-	961	-	
4a.1.4	Totals	-	1,027	-	-	-	-	-	154	1,181	1,181	-	-	-	-	-	-	-	-	14,370	-	
Disposal of Plant Systems																						
4a.1.5.1	Chemical Addition	-	27	-	-	-	-	-	4	31	-	-	31	-	-	-	-	-	-	821	-	
4a.1.5.2	Chemical Addition RCA	-	22	0	-	20	-	-	8	52	52	-	-	-	222	-	-	-	-	9,018	501	
4a.1.5.3	Condensate	-	529	-	-	-	-	-	79	609	-	-	609	-	-	-	-	-	-	15,699	-	
4a.1.5.4	Condensate (Contaminated)	-	525	39	71	2,764	-	-	561	3,961	3,961	-	-	30,383	-	-	-	-	1,233,881	13,466	-	
4a.1.5.5	Condenser Circulating Water	-	338	-	-	-	-	-	51	389	-	-	389	-	-	-	-	-	-	10,040	-	
4a.1.5.6	Electro Hydraulic Turbine Control	-	18	-	-	-	-	-	3	20	-	-	20	-	-	-	-	-	-	499	-	
4a.1.5.7	Feedwater & Emergency Feedwater	-	163	-	-	-	-	-	24	187	-	-	187	-	-	-	-	-	-	4,862	-	
4a.1.5.8	Feedwater & Emergency Feedwater (Cont.)	-	148	6	11	443	-	-	108	715	715	-	-	-	4,873	-	-	-	187,906	3,763	-	
4a.1.5.9	Feedwater & Emergency Feedwater RCA	-	237	5	11	438	-	-	127	620	620	-	-	-	4,815	-	-	-	195,560	5,531	-	
4a.1.5.10	Heater Drains	-	368	-	-	-	-	-	55	423	-	-	423	-	-	-	-	-	-	11,003	-	
4a.1.5.11	Heater Drains (Contaminated)	-	254	7	13	493	-	-	140	907	907	-	-	-	5,419	-	-	-	220,074	6,466	-	
4a.1.5.12	Heater Vent	-	31	-	-	-	-	-	5	36	-	-	36	-	-	-	-	-	-	1,002	-	
4a.1.5.13	High Pressure Extraction	-	24	-	-	-	-	-	4	27	-	-	27	-	-	-	-	-	-	729	-	
4a.1.5.14	Hydraulic Oil	-	2	-	-	-	-	-	0	3	-	-	3	-	-	-	-	-	-	75	-	
4a.1.5.15	Hydrogen	-	28	-	-	-	-	-	4	32	-	-	32	-	-	-	-	-	-	848	-	
4a.1.5.16	Hydrogen Seal Oil	-	30	-	-	-	-	-	4	34	-	-	34	-	-	-	-	-	-	923	-	
4a.1.5.17	Low Pressure Extraction	-	36	-	-	-	-	-	5	41	-	-	41	-	-	-	-	-	-	1,045	-	
4a.1.5.18	Main Steam	-	84	-	-	-	-	-	13	97	-	-	97	-	-	-	-	-	-	2,558	-	
4a.1.5.19	Main Steam RCA	-	304	37	65	2,530	-	-	489	3,406	3,406	-	-	-	27,808	-	-	-	1,129,284	7,693	-	
4a.1.5.20	Post Accident Monitoring	-	28	1	1	37	-	-	13	80	80	-	-	-	401	-	-	-	16,304	785	-	
4a.1.5.21	Reactor Building Spray	-	88	3	5	191	-	-	82	339	339	-	-	-	2,105	-	-	-	85,488	2,150	-	
4a.1.5.22	Recirc Cooling Water (Shared 1&2)	-	182	-	-	-	-	-	27	209	-	-	209	-	-	-	-	-	-	5,547	-	
4a.1.5.23	Recirc Cooling Water (shared 1&2) RCA	-	122	2	4	157	-	-	55	341	341	-	-	-	1,727	-	-	-	70,146	2,887	-	
4a.1.5.24	Sample Monitoring	-	69	7	13	44	6	-	49	270	270	-	-	-	489	312	-	-	47,870	2,704	-	
4a.1.5.25	Stator Coolant	-	49	-	-	-	-	-	7	56	-	-	56	-	-	-	-	-	-	1,507	-	
4a.1.5.26	Steam Drain	-	81	-	-	-	-	-	12	93	-	-	93	-	-	-	-	-	-	2,688	-	

Table D-2  
Oconee Nuclear Station - Unit 2  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt. Lbs.	Craft Manhours	Utility and Contractor Manhours
Disposal of Plant Systems (continued)																					
4a.1.5.27	Steam Seal	-	48	1	1	48	-	-	19	118	118	-	-	533	-	-	-	-	21,648	1,150	-
4a.1.5.28	Turbine Oil	-	121	-	-	-	-	-	18	139	-	-	139	-	-	-	-	-	-	3,518	-
4a.1.5.29	Vacuum	-	114	-	-	-	-	-	17	131	-	-	131	-	-	-	-	-	-	3,438	-
4a.1.5	Totals	-	4,102	110	193	7,166	61	-	1,833	13,566	11,008	-	2,558	78,777	312	-	-	-	3,227,177	113,929	-
4a.1.6	Scaffolding in support of decommissioning	-	411	8	2	44	5	-	112	581	581	-	-	433	27	-	-	-	21,816	12,903	-
4a.1	Subtotal Period 4a Activity Costs	163	14,479	6,306	2,510	8,828	47,435	317	22,951	102,988	100,430	-	2,558	89,989	48,570	3,325	517	440	9,916,696	234,029	3,275
Period 4a Collateral Costs																					
4a.3.1	Process liquid waste	15	-	9	25	-	38	-	23	113	113	-	-	-	145	-	-	-	8,691	28	-
4a.3.2	Small tool allowance	-	165	-	-	-	-	-	25	191	172	-	19	-	-	-	-	-	-	-	-
4a.3.3	Survey and Release of Scrap Metal	-	-	-	-	-	-	377	56	433	433	-	-	-	-	-	-	-	-	-	-
4a.3	Subtotal Period 4a Collateral Costs	15	165	9	25	-	38	377	105	738	718	-	19	-	145	-	-	-	8,691	28	-
Period 4a Period-Dependent Costs																					
4a.4.1	Decon supplies	50	-	-	-	-	-	-	12	62	62	-	-	-	-	-	-	-	-	-	-
4a.4.2	Insurance	-	-	-	-	-	-	294	29	323	323	-	-	-	-	-	-	-	-	-	-
4a.4.3	Property taxes	-	-	-	-	-	-	6	1	7	6	-	1	-	-	-	-	-	-	-	-
4a.4.4	Health physics supplies	-	1,403	-	-	-	-	-	351	1,754	1,754	-	-	-	-	-	-	-	-	-	-
4a.4.5	Heavy equipment rental	-	2,019	-	-	-	-	-	303	2,322	2,322	-	-	-	-	-	-	-	-	-	-
4a.4.6	Disposal of DAW generated	-	-	50	42	-	124	-	42	257	257	-	-	-	2,932	-	-	-	58,642	107	-
4a.4.7	Plant energy budget	-	-	-	-	-	-	1,154	173	1,327	1,327	-	-	-	-	-	-	-	-	-	-
4a.4.8	NRC Fees	-	-	-	-	-	-	414	41	455	455	-	-	-	-	-	-	-	-	-	-
4a.4.9	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	344	52	396	396	-	-	-	-	-	-	-	-	-	-
4a.4.10	Indirect Overhead	-	-	-	-	-	-	2,097	315	2,412	2,412	-	-	-	-	-	-	-	-	-	-
4a.4.11	Security Staff Cost	-	-	-	-	-	-	526	79	605	605	-	-	-	-	-	-	-	-	-	20,579
4a.4.12	Utility Staff Cost	-	-	-	-	-	-	19,825	2,689	22,514	22,514	-	-	-	-	-	-	-	-	-	350,314
4a.4	Subtotal Period 4a Period-Dependent Costs	50	3,422	50	42	-	124	24,760	4,367	32,834	32,833	-	1	-	2,932	-	-	-	58,642	107	370,893
4a.0	TOTAL PERIOD 4a COST	230	18,068	6,364	2,577	8,828	47,566	25,454	27,442	136,559	133,982	-	2,578	89,989	51,747	3,325	517	440	9,984,029	234,164	374,168
PERIOD 4b - Site Decontamination																					
Period 4b Direct Decommissioning Activities																					
4b.1.1	Remove spent fuel racks	278	32	122	68	-	479	-	289	1,269	1,269	-	-	-	2,450	-	-	-	219,804	955	-
Disposal of Plant Systems																					
4b.1.2.1	Component Cooling	-	47	-	-	-	-	-	7	54	-	-	54	-	-	-	-	-	-	1,374	-
4b.1.2.2	Component Cooling RCA	-	116	2	3	130	-	-	49	300	300	-	-	1,430	-	-	-	-	58,079	2,674	-
4b.1.2.3	Core Flood	-	97	3	5	192	-	-	54	351	351	-	-	2,110	-	-	-	-	65,669	2,958	-
4b.1.2.4	Electrical (Clean)	-	583	-	-	-	-	-	87	670	-	-	670	-	-	-	-	-	-	16,348	-
4b.1.2.5	Electrical (Contaminated)	-	169	3	5	143	8	-	67	394	394	-	-	1,572	42	-	-	-	67,572	4,112	-
4b.1.2.6	Electrical (Contaminated) RCA	-	1,194	20	26	1,381	-	-	513	3,144	3,144	-	-	15,179	-	-	-	-	616,430	28,393	-
4b.1.2.7	Gaseous Waste Disposal (shared 1&2)	-	317	34	37	149	237	-	170	944	944	-	-	1,638	1,267	-	-	-	175,126	7,531	-
4b.1.2.8	High Pressure Injection	-	787	110	165	2,213	745	-	766	4,885	4,885	-	-	25,429	3,812	-	-	-	1,374,864	19,605	-
4b.1.2.9	Incore Instrumentation	-	15	0	0	-	3	-	4	22	22	-	-	-	13	-	-	-	1,168	406	-
4b.1.2.10	Liquid Waste Disposal (Shared 1&2)	-	1,346	110	135	501	862	-	658	3,611	3,611	-	-	5,503	4,610	-	-	-	618,897	32,839	-
4b.1.2.11	Low Pressure Injection	-	456	35	55	753	250	-	301	1,850	1,850	-	-	8,280	1,314	-	-	-	450,790	11,500	-
4b.1.2.12	On-Site/Off-Site Power	-	94	-	-	-	-	-	14	108	-	-	108	-	-	-	-	-	-	2,817	-
4b.1.2.13	Purge	-	149	7	11	440	-	-	100	712	712	-	-	4,842	-	-	-	-	196,641	3,091	-
4b.1.2.14	RFS Refueling Water	-	40	1	1	31	-	-	18	111	111	-	-	562	-	-	-	-	22,826	829	-
4b.1.2.15	Radiation Instrument Alarm	-	11	-	-	-	-	-	2	13	-	-	13	-	-	-	-	-	-	323	-
4b.1.2.16	Radiation Instrument Alarm RCA	-	29	0	0	6	-	-	8	42	42	-	-	63	-	-	-	-	2,565	788	-
4b.1.2.17	Reactor Building Cooling	-	345	25	44	1,705	-	-	351	2,471	2,471	-	-	18,745	-	-	-	-	761,247	8,761	-
4b.1.2.18	Reactor Coolant	-	206	18	17	56	108	-	93	508	508	-	-	723	553	-	-	-	78,866	5,353	-



Table D-2  
Oconee Nuclear Station - Unit 2  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decom Cost	Removal Cost	Packaging Cost	Transport Cost	Off-Site Processing Cost	LLRW Disposal Cost	Other Costs	Total Contingency	Total Costs	Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu Feet	Class A Cu Feet	Class B Cu Feet	Class C Cu Feet	GTCC Cu Feet	Burial / Processed Vol., Lbs.	Craft Manhours	Utility and Contractor Manhours
4b.1.2.1b	React. Coolant Storage	-	440	40	54	250	319	-	254	1,457	1,457	-	-	3,848	1,804	-	-	-	302,444	10,819	-
4b.1.2.2	Spent Fuel Cooling	-	233	16	28	273	155	-	144	654	654	-	-	3,003	867	-	-	-	193,703	5,726	-
4b.1.2.3	Verification Clean	-	173	-	-	-	-	-	26	158	158	-	198	-	-	-	-	-	-	5,290	-
4b.1.2.3a	Verification Contaminated	-	516	13	32	853	-	-	352	1,655	1,655	-	-	9,382	-	-	-	-	381,013	11,488	-
4b.1.2.3b	Verification clean (RCA)	-	243	-	12	448	-	-	130	838	838	-	-	4,925	-	-	-	-	202,000	4,819	-
4b.1.2	Totals	-	7,604	444	83	8,155	3,687	-	4,084	35,205	34,161	-	1,044	107,335	14,222	-	-	-	6,587,401	187,513	-
4b.1.3	Scaffolding in support of decommissioning	-	616	12	3	56	8	-	167	872	872	-	-	550	40	-	-	-	32,874	19,935	-
4b.1.4	Decontamination of Site Buildings	-	675	697	171	254	434	947	460	3,985	3,985	-	-	4,658	10,211	-	-	-	894,595	31,331	-
4b.1.4.1	Reactor Building	-	272	94	36	37	57	63	189	727	727	-	-	628	1,435	-	-	-	174,416	8,853	-
4b.1.4.2	Auxiliary Building	-	185	21	5	8	11	-	102	333	333	-	-	-	314	-	-	-	21,708	5,240	-
4b.1.4.3	Turbine Building	-	176	191	4	8	93	5	152	619	619	-	-	916	-	-	-	-	46,231	8,572	-
4b.1.4.4	Fuel Building	-	1,309	873	205	304	564	1,032	1,303	5,678	5,678	-	-	6,202	12,092	-	-	-	1,088,921	54,097	-
4b.1.4	Totals	-	1,587	9,228	763	1,095	1,045	4,193	5,844	33,023	31,979	-	1,044	114,087	28,805	-	-	-	6,925,959	251,921	-
4b.1	Subtotal Period 4b Activity Costs	-	1,587	9,228	763	1,095	1,045	4,193	5,844	33,023	31,979	-	1,044	114,087	28,805	-	-	-	6,925,959	251,921	-
Period 4b Additional Costs																					
4b.2.1	Contaminant Paint Remediation	92	-	7	12	-	-	84	69	264	264	-	-	-	452	-	-	-	-	600	-
4b.2.2	License Termination Survey Management Program	-	-	-	-	-	-	616	185	801	801	-	-	-	-	-	-	-	-	-	-
4b.2	Subtotal Period 4b Additional Costs	92	-	7	12	-	-	84	254	1,065	1,065	-	-	-	452	-	-	-	-	600	-
Period 4b Collateral Costs																					
4b.3.1	Process liquid waste	49	-	23	69	-	102	-	63	309	309	-	-	-	-	281	-	-	23,489	76	-
4b.3.2	Small tool allowance	-	163	-	-	-	-	-	28	213	213	-	-	-	-	-	-	-	-	-	-
4b.3.3	Decommissioning Equipment Disposition	-	-	109	26	605	53	-	124	840	840	-	-	6,000	373	-	-	-	303,507	88	-
4b.3.4	Survey and Release of Scrap Metal	-	-	-	-	-	-	563	85	649	649	-	-	-	-	-	-	-	-	-	-
4b.3	Subtotal Period 4b Collateral Costs	49	163	132	95	605	175	565	239	2,108	2,108	-	-	6,000	765	-	-	-	326,990	164	-
Period 4b Period-Dependent Costs																					
4b.4.1	Decom supplies	740	-	-	-	-	-	-	185	925	925	-	-	-	-	-	-	-	-	-	-
4b.4.2	Insurance	-	-	-	-	-	-	449	45	494	494	-	-	-	-	-	-	-	-	-	-
4b.4.3	Property taxes	-	-	-	-	-	-	9	1	10	10	-	-	-	-	-	-	-	-	-	-
4b.4.4	Health physics supplies	-	1,691	-	-	-	-	-	420	2,101	2,101	-	-	-	-	-	-	-	-	-	-
4b.4.5	Heavy equipment rental	-	3,054	-	-	-	-	-	460	3,523	3,523	-	-	-	-	-	-	-	-	-	-
4b.4.6	Disposal of DAW generated	-	-	68	57	-	159	-	58	352	352	-	-	-	4,020	-	-	-	80,393	196	-
4b.4.7	Plant energy budget	-	-	-	-	-	-	1,193	208	1,602	1,602	-	-	-	-	-	-	-	-	-	-
4b.4.8	RWC Fees	-	-	-	-	-	-	832	133	965	965	-	-	-	-	-	-	-	-	-	-
4b.4.9	Liquid Radioactive Processing Equipment/Services	-	-	-	-	-	-	3,172	328	2,848	2,848	-	-	-	-	-	-	-	-	-	-
4b.4.10	Indirect Overhead	-	-	-	-	-	-	854	171	925	925	-	-	-	-	-	-	-	-	-	-
4b.4.11	Utility Plant Cost	-	-	-	-	-	-	20,102	3,015	23,117	23,117	-	-	-	-	-	-	-	-	-	-
4b.4.12	Utility Plant Cost	-	-	-	-	-	-	20,102	3,015	23,117	23,117	-	-	-	-	-	-	-	-	-	-
4b.4	Subtotal Period 4b Period-Dependent Costs	740	4,745	68	57	-	169	26,087	4,991	28,847	28,847	-	1,044	120,087	34,042	-	-	-	7,334,382	263,072	403,480
4b.0	TOTAL PERIOD 4b COST	2,468	14,155	590	1,173	10,949	4,821	27,268	11,379	73,044	72,000	-	1,044	120,087	34,042	-	-	-	7,334,382	263,072	403,480
PERIOD 4d - Delay before License Termination																					
Period 4d Direct Decommissioning Activities																					
Period 4d Period-Dependent Costs																					
4d.4.1	Insurance	-	-	-	-	-	-	-	1	9	9	-	-	-	-	-	-	-	-	-	-
4d.4.2	Property taxes	-	-	-	-	-	-	-	27	135	135	-	-	-	-	-	-	-	-	-	-
4d.4.3	Health physics supplies	-	108	-	-	-	-	-	2	11	11	-	-	-	-	-	-	-	-	-	-
4d.4.4	Disposal of DAW generated	-	-	2	2	-	5	-	-	-	-	-	-	-	130	-	-	-	2,554	3	-

Table D-2  
Oconee Nuclear Station - Unit 2  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

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Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 4d Period-Dependent Costs (continued)																					
4d.4.5	Plant energy budget	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4d.4.6	NRC Fees	-	-	-	-	-	-	222	22	244	244	-	-	-	-	-	-	-	-	-	-
4d.4.7	Indirect Overhead	-	-	-	-	-	-	114	17	131	131	-	-	-	-	-	-	-	-	-	-
4d.4.8	Security Staff Cost	-	-	-	-	-	-	3	1	4	4	-	-	-	-	-	-	-	-	-	8,143
4d.4.9	Utility Staff Cost	-	-	-	-	-	-	925	139	1,064	1,064	-	-	-	-	-	-	-	-	-	19,000
4d.4	Subtotal Period 4d Period-Dependent Costs	-	108	2	2	-	5	1,272	208	1,598	1,598	-	-	-	130	-	-	-	2,594	5	27,143
4d.0	TOTAL PERIOD 4d COST	-	108	2	2	-	5	1,272	208	1,598	1,598	-	-	-	130	-	-	-	2,594	5	27,143
PERIOD 4e - License Termination																					
Period 4e Direct Decommissioning Activities																					
4e.1.1	ORISE confirmatory survey	-	-	-	-	-	-	150	45	195	195	-	-	-	-	-	-	-	-	-	-
4e.1.2	Terminate license	-	-	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-
4e.1	Subtotal Period 4e Activity Costs	-	-	-	-	-	-	150	45	195	195	-	-	-	-	-	-	-	-	-	-
Period 4e Additional Costs																					
4e.2.1	License Termination Survey	-	-	-	-	-	-	5,264	1,579	6,844	6,844	-	-	-	-	-	-	-	-	131,203	3,120
4e.2	Subtotal Period 4e Additional Costs	-	-	-	-	-	-	5,264	1,579	6,844	6,844	-	-	-	-	-	-	-	-	131,203	3,120
Period 4e Period-Dependent Costs																					
4e.4.1	Insurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4e.4.2	Property taxes	-	-	-	-	-	-	5	5	5	5	-	-	-	-	-	-	-	-	-	-
4e.4.3	Health physics supplies	-	815	-	-	-	-	-	204	1,019	1,019	-	-	-	-	-	-	-	-	-	-
4e.4.4	Disposal of DAW generated	-	-	5	4	-	13	-	5	27	27	-	-	-	314	-	-	-	6,276	11	-
4e.4.5	Plant energy budget	-	-	-	-	-	-	199	30	229	229	-	-	-	-	-	-	-	-	-	-
4e.4.6	NRC Fees	-	-	-	-	-	-	354	35	389	389	-	-	-	-	-	-	-	-	-	-
4e.4.7	Indirect Overhead	-	-	-	-	-	-	412	62	474	474	-	-	-	-	-	-	-	-	-	-
4e.4.8	Security Staff Cost	-	-	-	-	-	-	121	18	140	140	-	-	-	-	-	-	-	-	-	4,637
4e.4.9	Utility Staff Cost	-	-	-	-	-	-	4,045	607	4,652	4,652	-	-	-	-	-	-	-	-	-	68,891
4e.4	Subtotal Period 4e Period-Dependent Costs	-	815	5	4	-	13	5,136	661	5,935	5,935	-	-	-	314	-	-	-	6,276	11	73,589
4e.0	TOTAL PERIOD 4e COST	-	815	5	4	-	13	10,590	2,585	13,974	13,974	-	-	-	314	-	-	-	6,276	131,214	75,709
PERIOD 4 TOTALS		2,698	33,146	7,362	2,756	18,818	52,235	64,544	41,814	225,174	221,553	-	3,821	210,076	86,232	3,325	517	440	17,327,280	629,415	878,499
PERIOD 5b - Site Restoration																					
Period 5b Direct Decommissioning Activities																					
Demolition of Remaining Site Buildings																					
5b.1.1.1	Reactor Building	-	4,114	-	-	-	-	-	517	4,731	-	-	4,731	-	-	-	-	-	-	53,465	-
5b.1.1.2	Auxiliary Building	-	826	-	-	-	-	-	124	950	-	-	950	-	-	-	-	-	-	12,013	-
5b.1.1.3	Turbine Building	-	1,526	-	-	-	-	-	229	1,755	-	-	1,755	-	-	-	-	-	-	27,989	-
5b.1.1.4	Turbine Pedestal	-	407	-	-	-	-	-	61	468	-	-	468	-	-	-	-	-	-	4,881	-
5b.1.1.5	Fuel Building	-	648	-	-	-	-	-	97	745	-	-	745	-	-	-	-	-	-	6,163	-
5b.1.1	Totals	-	7,520	-	-	-	-	-	1,128	8,649	-	-	8,649	-	-	-	-	-	-	107,510	-
Site Closeout Activities																					
5b.1.2	Grade & landscape site	-	86	-	-	-	-	-	13	99	-	-	99	-	-	-	-	-	-	191	-
5b.1.3	Final report to NRC	-	-	-	-	-	-	61	9	70	70	-	-	-	-	-	-	-	-	-	668
5b.1	Subtotal Period 5b Activity Costs	-	7,606	-	-	-	-	61	1,150	8,818	70	-	8,747	-	-	-	-	-	-	107,702	668
Period 5b Additional Costs																					
5b.2.1	Concrete Crushing	-	267	-	-	-	-	2	40	309	-	-	309	-	-	-	-	-	-	1,359	-
5b.2	Subtotal Period 5b Additional Costs	-	267	-	-	-	-	2	40	309	-	-	309	-	-	-	-	-	-	1,359	-

Table D-2  
Oconee Nuclear Station - Unit 2  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 5b Collateral Costs																					
5b.3.1	Small tool allowance	-	78	-	-	-	-	-	12	89	-	-	99	-	-	-	-	-	-	-	-
5b.3	Subtotal Period 5b Collateral Costs	-	78	-	-	-	-	-	12	89	-	-	99	-	-	-	-	-	-	-	-
Period 5b Period-Dependent Costs																					
5b.4.1	Insurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5b.4.2	Property taxes	-	-	-	-	-	-	15	2	17	-	-	17	-	-	-	-	-	-	-	-
5b.4.3	Heavy equipment rental	-	6,792	-	-	-	-	-	1,019	7,811	-	-	7,811	-	-	-	-	-	-	-	-
5b.4.4	Plant energy budget	-	-	-	-	-	-	307	46	353	-	-	353	-	-	-	-	-	-	-	-
5b.4.5	Indirect Overhead	-	-	-	-	-	-	739	111	850	850	-	-	-	-	-	-	-	-	-	-
5b.4.6	Security Staff Cost	-	-	-	-	-	-	160	24	184	-	-	184	-	-	-	-	-	-	-	6,080
5b.4.7	Utility Staff Cost	-	-	-	-	-	-	8,888	1,033	7,921	-	-	7,921	-	-	-	-	-	-	-	123,420
5b.4	Subtotal Period 5b Period-Dependent Costs	-	6,792	-	-	-	-	8,109	2,234	17,135	850	-	16,285	-	-	-	-	-	-	-	129,476
5b.0	TOTAL PERIOD 5b COST	-	14,743	-	-	-	-	8,171	3,436	26,351	920	-	25,431	-	-	-	-	-	-	109,061	130,138
PERIOD 5 TOTALS																					
TOTAL COST TO DECOMMISSION																					
		6,843	59,448	7,811	4,536	19,818	55,682	291,841	82,031	528,074	435,993	62,588	29,492	210,076	134,572	3,325	517	440	18,174,060	836,745	3,742,245

TOTAL COST TO DECOMMISSION WITH 18.39% CONTINGENCY:	\$528,074	thousands of 2008 dollars
TOTAL NRC LICENSE TERMINATION COST IS 82.56% OR:	\$435,993	thousands of 2008 dollars
SPENT FUEL MANAGEMENT COST IS 11.85% OR:	\$62,588	thousands of 2008 dollars
NON-NUCLEAR DEMOLITION COST IS 5.58% OR:	\$29,492	thousands of 2008 dollars
TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC):	138,414	cubic feet
TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED:	440	cubic feet
TOTAL SCRAP METAL REMOVED:	43,985	tons
TOTAL CRAFT LABOR REQUIREMENTS:	828,579	man-hours

End Notes:  
 n/a - indicates that this activity not charged as decommissioning expense  
 n - indicates that this activity performed by decommissioning staff  
 0 - indicates that this value is less than 0.5 but is non-zero  
 a cell containing "-" indicates a zero value

Table D-3  
Oconee Nuclear Station - Unit 3  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt. Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
PERIOD 1a - Shutdown through Transition																					
Period 1a Direct Decommissioning Activities																					
1a.1.1	SAFSTOR site characterization survey	-	-	-	-	-	-	381	114	495	495	-	-	-	-	-	-	-	-	-	
1a.1.2	Prepare preliminary decommissioning cost	-	-	-	-	-	-	38	6	43	43	-	-	-	-	-	-	-	-	595	
1a.1.3	Notification of Cessation of Operations	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	
1a.1.4	Remove fuel & source material	-	-	-	-	-	-	-	-	n/a	-	-	-	-	-	-	-	-	-	-	
1a.1.5	Notification of Permanent Defueling	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	
1a.1.6	Deactivate plant systems & process waste	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	
1a.1.7	Prepare and submit PSDAR	-	-	-	-	-	-	56	9	67	67	-	-	-	-	-	-	-	-	856	
1a.1.8	Review plant dwgs & specs	-	-	-	-	-	-	38	6	43	43	-	-	-	-	-	-	-	-	595	
1a.1.9	Perform detailed rad survey	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	
1a.1.10	Estimate by-product inventory	-	-	-	-	-	-	28	4	33	33	-	-	-	-	-	-	-	-	428	
1a.1.11	End product description	-	-	-	-	-	-	29	4	33	33	-	-	-	-	-	-	-	-	428	
1a.1.12	Detailed by-product inventory	-	-	-	-	-	-	43	7	50	50	-	-	-	-	-	-	-	-	642	
1a.1.13	Define major work sequence	-	-	-	-	-	-	29	4	33	33	-	-	-	-	-	-	-	-	428	
1a.1.14	Perform SER and EA	-	-	-	-	-	-	90	13	103	103	-	-	-	-	-	-	-	-	1,327	
1a.1.15	Perform Site-Specific Cost Study	-	-	-	-	-	-	145	22	166	166	-	-	-	-	-	-	-	-	2,140	
Activity Specifications																					
1a.1.16.1	Prepare plant and facilities for SAFSTOR	-	-	-	-	-	-	142	21	164	164	-	-	-	-	-	-	-	-	2,106	
1a.1.16.2	Plant systems	-	-	-	-	-	-	121	18	139	139	-	-	-	-	-	-	-	-	1,783	
1a.1.16.3	Plant structures and buildings	-	-	-	-	-	-	90	14	104	104	-	-	-	-	-	-	-	-	1,335	
1a.1.16.4	Waste management	-	-	-	-	-	-	58	9	67	67	-	-	-	-	-	-	-	-	856	
1a.1.16.5	Facility and site dormancy	-	-	-	-	-	-	58	9	67	67	-	-	-	-	-	-	-	-	856	
1a.1.16	Total	-	-	-	-	-	-	469	70	539	539	-	-	-	-	-	-	-	-	6,936	
Detailed Work Procedures																					
1a.1.17.1	Plant systems	-	-	-	-	-	-	34	5	39	39	-	-	-	-	-	-	-	-	506	
1a.1.17.2	Facility closeout & dormancy	-	-	-	-	-	-	35	5	40	40	-	-	-	-	-	-	-	-	514	
1a.1.17	Total	-	-	-	-	-	-	69	10	79	79	-	-	-	-	-	-	-	-	1,020	
1a.1.18	Procure vacuum drying system	-	-	-	-	-	-	3	0	3	3	-	-	-	-	-	-	-	-	43	
1a.1.19	Drain/de-energize non-cont. systems	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	
1a.1.20	Drain & dry NSSS	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	
1a.1.21	Drain/de-energize contaminated systems	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	
1a.1.22	Decontaminate contaminated systems	-	-	-	-	-	-	-	-	a	-	-	-	-	-	-	-	-	-	-	
1a.1	Subtotal Period 1a Activity Costs	-	-	-	-	-	-	1,418	270	1,689	1,689	-	-	-	-	-	-	-	-	15,361	
Period 1a Additional Costs																					
1a.2.1	Asbestos Remediation	-	2,759	1	283	-	2,164	-	1,273	6,481	6,481	-	-	-	25,455	-	-	-	330,915	35,451	-
1a.2.2	Landfill and Firing Range Closure	-	-	-	-	-	-	818	82	900	-	-	900	-	-	-	-	-	-	-	
1a.2	Subtotal Period 1a Additional Costs	-	2,759	1	283	-	2,164	818	1,355	7,381	6,481	-	900	-	25,455	-	-	-	330,915	35,451	-
Period 1a Collateral Costs																					
1a.3.1	Small tool allowance	-	42	-	-	-	-	-	6	48	48	-	-	-	-	-	-	-	-	-	
1a.3.2	Spent Fuel Capital and Transfer	-	-	-	-	-	-	735	110	846	-	846	-	-	-	-	-	-	-	-	
1a.3	Subtotal Period 1a Collateral Costs	-	42	-	-	-	-	735	117	894	48	846	-	-	-	-	-	-	-	-	
Period 1a Period-Dependent Costs																					
1a.4.1	Insurance	-	-	-	-	-	-	775	77	852	852	-	-	-	-	-	-	-	-	-	
1a.4.2	Property taxes	-	-	-	-	-	-	1,384	138	1,522	1,522	-	-	-	-	-	-	-	-	-	
1a.4.3	Health physics supplies	-	586	-	-	-	-	-	147	733	733	-	-	-	-	-	-	-	-	-	
1a.4.4	Disposal of DAW generated	-	-	10	8	-	24	-	8	50	50	-	-	-	571	-	-	-	21	-	
1a.4.5	Plant energy budget	-	-	-	-	-	-	1,324	199	1,522	1,522	-	-	-	-	-	-	-	-	-	
1a.4.6	NRC Fees	-	-	-	-	-	-	471	47	518	518	-	-	-	-	-	-	-	-	-	

Table D-3  
Oconee Nuclear Station - Unit 3  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Costs	Removal Costs	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet					
Period 1a Period-Dependent Costs (continued)																						
1a.4.7	Emergency Planning Fees	-	-	-	-	-	-	281	28	309	-	309	-	-	-	-	-	-	-	-	-	-
1a.4.8	FEMA Fees	-	-	-	-	-	-	126	19	145	145	-	-	-	-	-	-	-	-	-	-	
1a.4.9	Spent Fuel Pool O&M	-	-	-	-	-	-	745	112	857	-	857	-	-	-	-	-	-	-	-	-	
1a.4.10	ISFSI Operating Costs	-	-	-	-	-	-	109	16	125	-	125	-	-	-	-	-	-	-	-	-	
1a.4.11	Indirect Overhead	-	-	-	-	-	-	2,135	320	2,455	2,455	-	-	-	-	-	-	-	-	-	-	
1a.4.12	Security Staff Cost	-	-	-	-	-	-	4,566	885	5,251	5,251	-	-	-	-	-	-	-	-	-	157,471	
1a.4.13	Utility Staff Cost	-	-	-	-	-	-	19,239	3,886	22,125	22,125	-	-	-	-	-	-	-	-	-	356,857	
1a.4	Subtotal Period 1a Period-Dependent Costs	-	588	10	8	-	24	31,155	4,663	36,466	35,174	1,292	-	-	571	-	-	-	11,419	21	514,129	
1a.0	TOTAL PERIOD 1a COST	-	3,387	11	291	-	2,188	34,128	8,424	46,430	43,392	2,137	900	-	26,026	-	-	-	342,334	35,472	529,489	
PERIOD 1b - SAFSTOR Limited DECON Activities																						
Period 1b Direct Decommissioning Activities																						
Decontamination of Site Buildings																						
1b.1.1.1	Reactor Building	759	-	-	-	-	-	-	379	1,138	1,138	-	-	-	-	-	-	-	-	19,093	-	
1b.1.1.2	Auxiliary Building	343	-	-	-	-	-	-	171	514	514	-	-	-	-	-	-	-	-	9,064	-	
1b.1.1.3	Contaminated Misc. Structures (common)	14	-	-	-	-	-	-	7	21	21	-	-	-	-	-	-	-	-	379	-	
1b.1.1.4	Hot Machine Shop (common)	45	-	-	-	-	-	-	24	72	72	-	-	-	-	-	-	-	-	1,267	-	
1b.1.1.5	Interim Radwaste Building (common)	97	-	-	-	-	-	-	48	145	145	-	-	-	-	-	-	-	-	2,570	-	
1b.1.1.6	Radwaste Facility (common)	353	-	-	-	-	-	-	177	530	530	-	-	-	-	-	-	-	-	8,941	-	
1b.1.1.7	Retired Steam Gen. Storage Bldg (common)	73	-	-	-	-	-	-	37	110	110	-	-	-	-	-	-	-	-	1,896	-	
1b.1.1.8	Turbine Building	192	-	-	-	-	-	-	96	288	288	-	-	-	-	-	-	-	-	5,013	-	
1b.1.1.9	Fuel Building	227	-	-	-	-	-	-	113	340	340	-	-	-	-	-	-	-	-	4,981	-	
1b.1.1	Totals	2,105	-	-	-	-	-	-	1,053	3,158	3,158	-	-	-	-	-	-	-	-	53,224	-	
1b.1	Subtotal Period 1b Activity Costs	2,105	-	-	-	-	-	-	1,053	3,158	3,158	-	-	-	-	-	-	-	-	53,224	-	
Period 1b Additional Costs																						
1b.2.1	Spent Fuel Pool Isolation	-	-	-	-	-	-	6,272	941	7,213	7,212	-	-	-	-	-	-	-	-	-	-	
1b.2.2	Landfill Post Closure Maintenance	-	-	-	-	-	-	10	1	11	-	-	11	-	-	-	-	-	-	-	-	
1b.2.3	Mixed Waste Disposal	-	-	7	2	15	-	-	3	27	27	-	-	120	-	-	-	-	7,363	92	-	
1b.2	Subtotal Period 1b Additional Costs	-	-	7	2	15	-	-	945	7,251	7,239	-	11	120	-	-	-	-	7,363	92	-	
Period 1b Collateral Costs																						
1b.3.1	Decon equipment	883	-	-	-	-	-	-	132	1,016	1,016	-	-	-	-	-	-	-	-	-	-	
1b.3.2	Process liquid waste	110	-	44	132	-	153	-	128	611	611	-	-	-	751	-	-	-	45,068	146	-	
1b.3.3	Small tool allowance	-	37	-	-	-	-	-	6	43	43	-	-	-	-	-	-	-	-	-	-	
1b.3.4	Spent Fuel Capital and Transfer	-	-	-	-	-	-	75	11	87	-	87	-	-	-	-	-	-	-	-	-	
1b.3	Subtotal Period 1b Collateral Costs	994	37	44	132	-	153	75	278	1,756	1,669	87	-	-	751	-	-	-	45,068	146	-	
Period 1b Period-Dependent Costs																						
1b.4.1	Decon supplies	1,059	-	-	-	-	-	-	265	1,324	1,324	-	-	-	-	-	-	-	-	-	-	
1b.4.2	Insurance	-	-	-	-	-	-	188	23	215	215	-	-	-	-	-	-	-	-	-	-	
1b.4.3	Property taxes	-	-	-	-	-	-	349	35	384	384	-	-	-	-	-	-	-	-	-	-	
1b.4.4	Health physics supplies	-	337	-	-	-	-	-	84	421	421	-	-	-	-	-	-	-	-	-	-	
1b.4.5	Heavy equipment rental	-	115	-	-	-	-	-	17	133	133	-	-	-	-	-	-	-	-	-	-	
1b.4.6	Disposal of DAW generated	-	-	12	12	-	-	-	11	64	64	-	-	-	734	-	-	-	14,672	37	-	
1b.4.7	Plant energy budget	-	-	-	-	-	-	334	50	384	384	-	-	-	-	-	-	-	-	-	-	
1b.4.8	NRC Fees	-	-	-	-	-	-	119	12	131	131	-	-	-	-	-	-	-	-	-	-	
1b.4.9	Emergency Planning Fees	-	-	-	-	-	-	71	7	78	-	78	-	-	-	-	-	-	-	-	-	
1b.4.10	FEMA Fees	-	-	-	-	-	-	32	5	37	37	-	-	-	-	-	-	-	-	-	-	
1b.4.11	Spent Fuel Pool O&M	-	-	-	-	-	-	188	28	216	-	216	-	-	-	-	-	-	-	-	-	
1b.4.12	ISFSI Operating Costs	-	-	-	-	-	-	27	4	32	-	32	-	-	-	-	-	-	-	-	-	
1b.4.13	Indirect Overhead	-	-	-	-	-	-	538	81	619	619	-	-	-	-	-	-	-	-	-	-	



Table D-3  
Oconee Nuclear Station - Unit 3  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Burial Volumes Cu. Feet	Class B Burial Volumes Cu. Feet	Class C Burial Volumes Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt. Lbs.	Craft Manhours	Utility and Contractor Manhours
1b.1.1	Period-Dependent Costs (continued)	-	-	-	-	-	-	1,114	111	1,224	1,324	-	-	-	-	-	-	-	-	-	39,691
1b.1.1.1	Security Staff Cost	-	-	-	-	-	-	727	55%	557	-	-	-	-	-	-	-	-	-	-	11,897
1b.1.1.2	Subtotal Period-Dependent Costs	1,058	234	12	10	-	31	7,853	1,518	10,902	10,678	412	11	120	1485	-	-	-	148,721	27	129,589
1b.1	Period-Dependent Costs	4,158	569	63	195	-	227	16,110	3,794	21,102	21,678	412	11	120	1485	-	-	-	67,104	53	179,539
1b.2	Period-Independent Costs for SAFSTOR Dormancy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1b.2.1	Period-Independent Decommissioning Activities	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1b.2.1.1	ITC/OTC support equipment for storage	-	338	-	-	-	-	-	58	446	446	-	-	-	-	-	-	-	-	-	1,001
1b.2.1.2	Initial containment removal equal to 1b.1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1b.2.1.3	Initial survey Pilot to confirm 1b.1.1	-	-	-	-	-	-	713	220	953	953	-	-	-	-	-	-	-	-	-	18,101
1b.2.1.4	Secure W/LLRW estimates	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1b.2.1.5	Prep to 6 drums to remove 1b.1.1	-	-	-	-	-	-	17	3	19	11	-	-	-	-	-	-	-	-	-	250
1b.2.1.6	Subtotal Period-Independent Activity Costs	-	320	-	-	-	-	730	285	1,455	1,455	-	-	-	-	-	-	-	-	17,501	250
1b.2.2	Period-Independent Costs	-	-	-	-	-	-	10	1	11	-	-	11	-	-	-	-	-	-	-	-
1b.2.2.1	Subtotal Period-Independent Costs	-	-	-	-	-	-	10	1	11	-	-	11	-	-	-	-	-	-	-	-
1b.3	Period-Independent Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1b.3.1	Process liquid waste	938	-	34	153	-	237	-	156	740	740	-	-	-	910	-	-	-	54,610	777	-
1b.3.2	Small liquid allowance	-	3	-	-	-	-	-	6	9	9	-	-	-	-	-	-	-	-	-	-
1b.3.3	Spent Fuel Storage and Transfer	11	-	-	-	-	-	11	11	22	-	87	-	-	-	-	-	-	-	-	-
1b.3.4	Subtotal Period-Independent Costs	934	3	34	153	-	237	75	151	749	744	67	-	-	910	-	-	-	54,610	777	-
1b.4	Period-Dependent Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1b.4.1	Initial Work	-	-	-	-	-	-	25	20	215	215	-	-	-	-	-	-	-	-	-	-
1b.4.2	Property taxes	-	-	-	-	-	-	25	20	215	215	-	-	-	-	-	-	-	-	-	-
1b.4.3	Heavy physical supplies	-	186	-	-	-	-	47	47	233	233	-	-	-	-	-	-	-	-	-	-
1b.4.4	Heavy equipment rental	-	115	-	-	-	-	13	13	131	131	-	-	-	-	-	-	-	-	-	-
1b.4.5	Disposal of DAW generated	-	-	3	2	-	5	-	10	13	13	-	-	-	944	-	-	-	3,876	5	-
1b.4.6	Fuel energy (fuel)	-	-	-	-	-	-	324	50	374	374	-	-	-	-	-	-	-	-	-	-
1b.4.7	NRC Fees	-	-	-	-	-	-	113	11	131	131	-	-	-	-	-	-	-	-	-	-
1b.4.8	Emergency Planning Fees	-	-	-	-	-	-	11	1	95	-	76	-	-	-	-	-	-	-	-	-
1b.4.9	FERIA Fee	-	-	-	-	-	-	32	3	17	37	-	-	-	-	-	-	-	-	-	-
1b.4.10	Spent Fuel Pool Outfit	-	-	-	-	-	-	181	26	215	-	216	-	-	-	-	-	-	-	-	-
1b.4.11	ISFSI Operating Costs	-	-	-	-	-	-	11	1	119	-	32	-	-	-	-	-	-	-	-	-
1b.4.12	Initial Overhead	-	-	-	-	-	-	538	81	619	619	-	-	-	-	-	-	-	-	-	-
1b.4.13	Initial Staff Cost	-	-	-	-	-	-	1,151	172	1,322	1,324	-	-	-	-	-	-	-	-	-	35,641
1b.4.14	Utility Staff Cost	-	-	-	-	-	-	4,543	671	5,214	5,217	-	-	-	-	-	-	-	-	-	95,861
1b.4.15	Subtotal Period-Independent Costs	-	302	2	2	-	5	7,829	1,000	9,346	9,346	425	-	-	944	-	-	-	2,876	5	11,951
1b.5	Period-Independent Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1b.5.1	Initial Work	-	-	-	-	-	-	25	20	215	215	-	-	-	-	-	-	-	-	-	-
1b.5.2	Property taxes	-	-	-	-	-	-	25	20	215	215	-	-	-	-	-	-	-	-	-	-
1b.5.3	Heavy physical supplies	-	186	-	-	-	-	47	47	233	233	-	-	-	-	-	-	-	-	-	-
1b.5.4	Heavy equipment rental	-	115	-	-	-	-	13	13	131	131	-	-	-	-	-	-	-	-	-	-
1b.5.5	Disposal of DAW generated	-	-	3	2	-	5	-	10	13	13	-	-	-	944	-	-	-	3,876	5	-
1b.5.6	Fuel energy (fuel)	-	-	-	-	-	-	324	50	374	374	-	-	-	-	-	-	-	-	-	-
1b.5.7	NRC Fees	-	-	-	-	-	-	113	11	131	131	-	-	-	-	-	-	-	-	-	-
1b.5.8	Emergency Planning Fees	-	-	-	-	-	-	11	1	95	-	76	-	-	-	-	-	-	-	-	-
1b.5.9	FERIA Fee	-	-	-	-	-	-	32	3	17	37	-	-	-	-	-	-	-	-	-	-
1b.5.10	Spent Fuel Pool Outfit	-	-	-	-	-	-	181	26	215	-	216	-	-	-	-	-	-	-	-	-
1b.5.11	ISFSI Operating Costs	-	-	-	-	-	-	11	1	119	-	32	-	-	-	-	-	-	-	-	-
1b.5.12	Initial Overhead	-	-	-	-	-	-	538	81	619	619	-	-	-	-	-	-	-	-	-	-
1b.5.13	Initial Staff Cost	-	-	-	-	-	-	1,151	172	1,322	1,324	-	-	-	-	-	-	-	-	-	35,641
1b.5.14	Utility Staff Cost	-	-	-	-	-	-	4,543	671	5,214	5,217	-	-	-	-	-	-	-	-	-	95,861
1b.5.15	Subtotal Period-Independent Costs	-	302	2	2	-	5	7,829	1,000	9,346	9,346	425	-	-	944	-	-	-	2,876	5	11,951
1b.6	Period-Independent Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1b.6.1	Initial Work	-	-	-	-	-	-	25	20	215	215	-	-	-	-	-	-	-	-	-	-
1b.6.2	Property taxes	-	-	-	-	-	-	25	20	215	215	-	-	-	-	-	-	-	-	-	-
1b.6.3	Heavy physical supplies	-	186	-	-	-	-	47	47	233	233	-	-	-	-	-	-	-	-	-	-
1b.6.4	Heavy equipment rental	-	115	-	-	-	-	13	13	131	131	-	-	-	-	-	-	-	-	-	-
1b.6.5	Disposal of DAW generated	-	-	3	2	-	5	-	10	13	13	-	-	-	944	-	-	-	3,876	5	-
1b.6.6	Fuel energy (fuel)	-	-	-	-	-	-	324	50	374	374	-	-	-	-	-	-	-	-	-	-
1b.6.7	NRC Fees	-	-	-	-	-	-	113	11	131	131	-	-	-	-	-	-	-	-	-	-
1b.6.8	Emergency Planning Fees	-	-	-	-	-	-	11	1	95	-	76	-	-	-	-	-	-	-	-	-
1b.6.9	FERIA Fee	-	-	-	-	-	-	32	3	17	37	-	-	-	-	-	-	-	-	-	-
1b.6.10	Spent Fuel Pool Outfit	-	-	-	-	-	-	181	26	215	-	216	-	-	-	-	-	-	-	-	-
1b.6.11	ISFSI Operating Costs	-	-	-	-	-	-	11	1	119	-	32	-	-	-	-	-	-	-	-	-
1b.6.12	Initial Overhead	-	-	-	-	-	-	538	81	619	619	-	-	-	-	-	-	-	-	-	-
1b.6.13	Initial Staff Cost	-	-	-	-	-	-	1,151	172	1,322	1,324	-	-	-	-	-	-	-	-	-	35,641
1b.6.14	Utility Staff Cost	-	-	-	-	-	-	4,543	671	5,214	5,217	-	-	-	-	-	-	-	-	-	95,861
1b.6.15	Subtotal Period-Independent Costs	-	302	2	2	-	5	7,829	1,000	9,346	9,346	425	-	-	944	-	-	-	2,876	5	11,951
1b.7	Period-Independent Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1b.7.1	Initial Work	-	-	-	-	-	-	25	20	215	215	-	-	-	-	-	-	-	-	-	-
1b.7.2	Property taxes	-	-	-	-	-	-	25	20	215	215	-	-	-	-	-	-	-	-	-	-
1b.7.3	Heavy physical supplies	-	186	-	-	-	-	47	47	233	233	-	-	-	-	-	-	-	-	-	-
1b.7.4	Heavy equipment rental	-	115	-	-	-	-	13	13	131	131	-	-	-	-	-	-	-	-	-	-
1b.7.5	Disposal of DAW generated	-	-	3	2	-	5	-	10	13	13	-	-	-	944	-	-	-	3,876	5	-
1b.7.6	Fuel energy (fuel)	-	-	-	-	-	-	324	50	374	374	-	-	-	-	-	-	-	-	-	-
1b.7.7	NRC Fees	-	-	-	-	-	-	113	11	131	131	-	-	-	-	-	-	-	-	-	-
1b.7.8	Emergency Planning Fees	-	-	-	-	-	-	11	1	95	-	76	-	-	-	-	-	-	-	-	-
1b.7.9	FERIA Fee	-	-	-	-	-	-	32	3	17	37	-	-	-	-	-	-	-	-	-	-
1b.7.10	Spent Fuel Pool Outfit	-	-	-	-	-	-	181	26	215	-	216	-	-	-	-	-	-	-	-	-
1b.7.11	ISFSI Operating Costs	-	-	-	-	-	-	11	1	119	-	32	-	-	-	-	-	-	-	-	-
1b.7.12	Initial Overhead	-	-	-	-	-	-	538	81	619	619	-	-	-	-	-	-	-	-	-	-
1b.7.13	Initial Staff Cost	-	-	-	-	-	-	1,151	172	1,322	1,324	-	-	-	-	-	-	-	-	-	35,641
1b.7.14	Utility Staff Cost	-	-	-	-	-	-	4,543	671	5,214	5,217	-	-	-	-	-	-	-	-	-	95,861
1b.7.15	Subtotal Period-Independent Costs	-	302	2	2	-	5	7,829	1,000	9,346	9,346	425	-	-	944	-	-	-	2,876	5	11,951
1b.8	Period-Independent Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1b.8.1	Initial Work	-	-	-	-	-	-	25	20	215											

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Table D-3  
Oconee Nuclear Station - Unit 3  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Cost	Transport Cost	Off-Site Processing Cost	LLRW Disposal Cost	Other Cost	Total Contingency	Total Cost	NRC Lic. Term. Cost	Spent Fuel Management Cost	Site Restoration Cost	Processed Volume Cu. Ft/Kit	Class A Cu. Ft/Kit	Class B Cu. Ft/Kit	Class C Cu. Ft/Kit	GTCC Cu. Ft/Kit	Burial / Processed Wt. lbs/sq	Craft Manhours	Utility and Contractor Min/hour
Period 2b Period-Dependent Costs (continued)																					
2b.4.11	Utility Staff Cost	-	-	-	-	-	-	1,831	2,275	4,106	2,074	-	-	-	-	-	-	-	-	118,164	
2b.4	Subtotal Period 2b Period-Dependent Costs	-	1,111	29	34	-	72	5,944	1,278	10,288	1,312	1,913	-	-	1,694	-	-	-	118,164	52	124,503
2b.0	TOTAL PERIOD 2b COST	-	370	28	24	-	72	10,209	1,569	12,272	1,611	2,405	450	-	1,695	-	-	-	33,952	62	124,503
PERIOD 2c - SAFSTOR Decommissioning Activities																					
Period 2c On-site Decommissioning Activities																					
2c.1.1	Quarterly Inspection	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2c.1.2	Semi-annual environmental survey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2c.1.j	Prepare reports	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
2c.1.4	Bituminous roof replacement	-	-	-	-	-	-	2,377	2,377	2,377	1,681	-	-	-	-	-	-	-	-	-	
2c.1.5	Maintenance supplies	-	-	-	-	-	-	1,738	1,152	5,985	5,615	-	-	-	-	-	-	-	-	-	
2c.1	Subtotal Period 2c Activity Costs	-	-	-	-	-	-	705	1,539	8,604	11,904	-	-	-	-	-	-	-	-	-	
P/OQ 2c Period-Dependent Costs																					
2c.2.1	Insurance	-	-	-	-	-	-	10,598	1,950	11,548	11,651	-	-	-	-	-	-	-	-	-	
2c.2.2	Professional fees	-	-	-	-	-	-	247	25	272	271	-	-	-	-	-	-	-	-	-	
2c.2.3	Health physics supplies	-	1,034	-	-	-	-	-	267	1,299	3,337	-	-	-	-	-	-	-	-	-	
2c.2.4	Disposal of DAW 88" rail (1)	-	-	238	200	-	594	-	202	1,234	1,214	-	-	-	101,082	-	-	-	281,751	513	-
2c.2.5	Plant entrapment budget	-	-	-	-	-	-	5,042	50	5,092	5,199	-	-	-	-	-	-	-	-	-	
2c.2.5	NRC Fees	-	-	-	-	-	-	619B	6X1	7,145	7,148	-	-	-	-	-	-	-	-	-	
2c.2.7	Indirect Overhead	-	-	-	-	-	-	19,011	385	4,396	2,106	-	-	-	-	-	-	-	-	-	
2c.2.11	Security Staff Cost	-	-	-	-	-	-	11,199	2,580	13,779	19,179	-	-	-	-	-	-	-	-	397,257	
2c.2.9	Utility Staff Cost	-	-	-	-	-	-	1,445.1	21,444	17,205	17,245	-	-	-	-	-	-	-	-	317,806	
2c.2	Subtotal Period 2c Period-Dependent Costs	-	1,088	238	200	-	594	33,572	31,008	77,720	77,720	-	-	-	14,088	-	-	-	281,751	513	715,063
2c.0	TOTAL PERIOD 2c COST	-	3,658	238	200	-	594	43,572	42,016	119,240	106,655	57,743	888	-	15,471	-	-	-	389,420	709	1,065,995
PERIOD 2 TOTALS																					
PERIOD 3a - Reactivate Site Following SAFSTOR Outmillage																					
Period 3a Reactivate Site Following SAFSTOR Outmillage																					
3a.1.1	Prepare Preliminary Jitter/Initial Outmillage cost	-	-	-	-	-	-	35	3	43	43	-	-	-	-	-	-	-	-	556	
3a.1.2	Review plant design & layout	-	-	-	-	-	-	113	10	153	153	-	-	-	-	-	-	-	-	1,968	
3a.1.3	Finalize detailed rad survey	-	-	-	-	-	-	29	1	33	33	-	-	-	-	-	-	-	-	428	
3a.1.4	Finalize by-product inventory	-	-	-	-	-	-	11	1	43	43	-	-	-	-	-	-	-	-	516	
3a.1.5	Define safety management	-	-	-	-	-	-	179	11	111	261	-	-	-	-	-	-	-	-	1,211	
3a.1.7	Perform SER and EA	-	-	-	-	-	-	90	13	102	103	-	-	-	-	-	-	-	-	1,337	
3a.1.11	Perform Site-Specific Cost Study	-	-	-	-	-	-	145	27	156	156	-	-	-	-	-	-	-	-	2,140	
3a.1.19	Prepare Submittal/Initial Termination Plan	-	-	-	-	-	-	154	16	136	136	-	-	-	-	-	-	-	-	1,753	
3a.1.19	Receive Jitter/Approval of Termination Plan	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Activity Specifications																					
3a.1.1.1	Re-activate plant & temporary facilities	-	-	-	-	-	-	241	11	245	241	-	25	-	-	-	-	-	-	1,154	
3a.1.1.2	PLUT systems	-	-	-	-	-	-	11	16	139	128	-	14	-	-	-	-	-	-	1,180	
3a.1.1.3	Reactor internals	-	-	-	-	-	-	205	31	236	236	-	-	-	-	-	-	-	-	311,31	
3a.1.1.4	Reactor vessel	-	-	-	-	-	-	181	33	216	265	-	-	-	-	-	-	-	-	2,782	
3a.1.1.5	Biological shield	-	-	-	-	-	-	11	3	14	17	-	-	-	-	-	-	-	-	214	
3a.1.1.6	Steam generators	-	-	-	-	-	-	120	13	134	101	-	-	-	-	-	-	-	-	1,135	
3a.1.1.7	Reinforced concrete	-	-	-	-	-	-	45	7	52	51	-	27	-	-	-	-	-	-	967	
3a.1.1.8	Main Turbine	-	-	-	-	-	-	42	2	44	13	-	11	-	-	-	-	-	-	111	
3a.1.1.9	Main Condensate	-	-	-	-	-	-	12	2	13	13	-	13	-	-	-	-	-	-	111	

Table D-3  
Oconee Nuclear Station - Unit 3  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Estimated Cost	Removal Cost	Packaging Costs	Transport Costs	Offsite Processing Costs	ILRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Fee Costs	Spent Fuel Management Costs	Site Restoration Costs	Processors Volume Cu. Feet	Clean Up Cu. Feet	Clean Up Cu. Feet	Clean Up Cu. Feet	GICC Cu. Feet	Burner Processes Vol. LBS.	COB Manhours	Utility and Contingency Manhours
Activity Specifications (continued)																					
3a.1.11.10	Plant structures & buildings	-	-	-	-	-	-	90	14	104	52	-	52	-	-	-	-	-	-	1115	
3a.1.11.11	Waste management	-	-	-	-	-	-	100	10	110	153	-	-	-	-	-	-	-	-	1,400	
3a.1.11.12	Facility & site closeout	-	-	-	-	-	-	26	4	30	11	-	15	-	-	-	-	-	-	300	
3a.1.11	Total	-	-	-	-	-	-	151	173	324	153	-	159	-	-	-	-	-	-	1,705	
Planning & Site Preparations																					
3a.1.12	Prepare dismantling sequence	-	-	-	-	-	-	15	10	25	8	-	-	-	-	-	-	-	-	1127	
3a.1.13	Plant prep. & temp. moves	-	-	-	-	-	-	2,000	10	2,010	3,105	-	-	-	-	-	-	-	-	-	
3a.1.14	Design water clean-up system	-	-	-	-	-	-	41	5	46	6	-	-	-	-	-	-	-	-	599	
3a.1.15	Rigging/Cont. Cont. Envs/Tooling/etc	-	-	-	-	-	-	2,100	15	2,115	2,415	-	-	-	-	-	-	-	-	-	
3a.1.16	Procure casks/liners & containers	-	-	-	-	-	-	11	3	14	49	-	-	-	-	-	-	-	-	821	
3a.1	Subtotal Period 3a Activity Costs	-	-	-	-	-	-	6,904	1,036	7,940	7,762	-	159	-	-	-	-	-	-	-	3,712
Period 3a Additional Costs																					
3a.2.1	Site Characterization SVLs, etc.	-	-	-	-	-	-	1,252	14	1,266	1,628	-	-	-	-	-	-	-	-	1,607	
3a.2	Subtotal Period 3a Additional Costs	-	-	-	-	-	-	1,252	176	1,428	1,628	-	-	-	-	-	-	-	-	-	1,607
Period 3a Period-Dependent Costs																					
3a.3.1	Insurance	-	-	-	-	-	-	27	25	52	306	-	-	-	-	-	-	-	-	-	
3a.3.2	Property taxes	-	-	-	-	-	-	1	1	2	7	-	-	-	-	-	-	-	-	-	
3a.3.3	Health physics supplies	-	-	981	-	-	-	-	95	476	476	-	-	-	-	-	-	-	-	-	
3a.3.4	Heavy equipment rental	-	-	111	-	-	-	-	69	516	516	-	-	-	-	-	-	-	-	-	
3a.3.5	Disposal of DAW generated	-	-	5	-	-	20	-	1	42	42	-	-	-	961	-	-	-	1,613	15	
3a.3.6	Plant energy budget	-	-	-	-	-	-	1,324	132	1,456	1,522	-	-	-	-	-	-	-	-	-	
3a.3.7	NRC Fees	-	-	-	-	-	-	214	21	235	236	-	-	-	-	-	-	-	-	-	
3a.3.8	Indirect Overhead	-	-	-	-	-	-	1,198	102	1,300	1,116	-	-	-	-	-	-	-	-	-	
3a.3.9	Security Staff Cost	-	-	-	-	-	-	2,218	133	2,351	2,552	-	-	-	-	-	-	-	-	-	
3a.3.10	Utility Staff Cost	-	-	-	-	-	-	10,709	1,000	11,709	12,111	-	-	-	-	-	-	-	-	-	
3a.3	Subtotal Period 3a Period-Dependent Costs	-	-	838	8	7	20	11,344	2,538	13,882	15,561	-	-	-	481	-	-	-	5093	18	265,407
3a	TOTAL PERIOD 3a COST	-	-	838	8	7	20	14,106	3,649	17,755	16,770	-	159	-	481	-	-	-	5602	38	299,187
PERIOD 3b: Decommissioning Preparations																					
Period 3b Detailed Decommissioning Activities																					
Detailed Work Procedures																					
3b.1.1.1	Plant systems	-	-	-	-	-	-	185	18	203	192	-	21	-	-	-	-	-	-	-	
3b.1.1.2	Reactor internals	-	-	-	-	-	-	10	10	20	111	-	-	-	-	-	-	-	-	-	
3b.1.1.3	Remaining buildings	-	-	-	-	-	-	53	5	58	81	-	46	-	-	-	-	-	-	-	
3b.1.1.4	CRD cooling assembly	-	-	-	-	-	-	180	11	191	49	-	-	-	-	-	-	-	-	-	
3b.1.1.5	CRD housings & ICI tubes	-	-	-	-	-	-	39	3	42	48	-	-	-	-	-	-	-	-	-	
3b.1.1.6	Incore instrumentation	-	-	-	-	-	-	12	6	18	25	-	-	-	-	-	-	-	-	-	
3b.1.1.7	Reactor vessel	-	-	-	-	-	-	142	21	163	606	-	-	-	-	-	-	-	-	-	
3b.1.1.8	Facility closeout	-	-	-	-	-	-	11	7	18	27	-	27	-	-	-	-	-	-	-	
3b.1.1.9	Missile shields	-	-	-	-	-	-	11	3	14	20	-	-	-	-	-	-	-	-	-	
3b.1.1.10	Biological shield	-	-	-	-	-	-	11	3	14	20	-	-	-	-	-	-	-	-	-	
3b.1.1.11	Steam generators	-	-	-	-	-	-	10	27	37	216	-	-	-	-	-	-	-	-	-	
3b.1.1.12	Reinforced concrete	-	-	-	-	-	-	10	6	16	13	-	-	-	-	-	-	-	-	-	
3b.1.1.13	Main Turbine	-	-	-	-	-	-	11	8	19	10	-	-	-	-	-	-	-	-	-	
3b.1.1.14	Main Condensers	-	-	-	-	-	-	81	10	91	10	-	-	-	-	-	-	-	-	-	
3b.1.1.15	Auxiliary building	-	-	-	-	-	-	107	18	125	111	-	-	-	-	-	-	-	-	-	
3b.1.1.16	Reactor building	-	-	-	-	-	-	10	16	26	11	-	-	-	-	-	-	-	-	-	
3b.1.1	Total	-	-	-	-	-	-	1,261	189	1,450	1,771	-	281	-	-	-	-	-	-	-	
3b	Subtotal Period 3b Activity Costs	-	-	-	-	-	-	1,261	189	1,450	1,771	-	281	-	-	-	-	-	-	-	93,800

Table D-3  
Oconee Nuclear Station - Unit 3  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Period 3b Collateral Costs																					
3b.3.1	Decon equipment	883	-	-	-	-	-	-	132	1,016	1,016	-	-	-	-	-	-	-	-	-	-
3b.3.2	Pipe cutting equipment	-	1,000	-	-	-	-	-	150	1,150	1,150	-	-	-	-	-	-	-	-	-	-
3b.3	Subtotal Period 3b Collateral Costs	883	1,000	-	-	-	-	-	282	2,166	2,166	-	-	-	-	-	-	-	-	-	-
Period 3b Period-Dependent Costs																					
3b.4.1	Decon supplies	27	-	-	-	-	-	-	7	34	34	-	-	-	-	-	-	-	-	-	-
3b.4.2	Insurance	-	-	-	-	-	-	160	16	176	176	-	-	-	-	-	-	-	-	-	-
3b.4.3	Property taxes	-	-	-	-	-	-	3	0	4	4	-	-	-	-	-	-	-	-	-	-
3b.4.4	Health physics supplies	-	203	-	-	-	-	-	51	253	253	-	-	-	-	-	-	-	-	-	-
3b.4.5	Heavy equipment rental	-	228	-	-	-	-	-	34	262	262	-	-	-	-	-	-	-	-	-	-
3b.4.6	Disposal of DAW generated	-	-	4	4	-	11	-	4	23	23	-	-	-	261	-	-	-	5,214	9	-
3b.4.7	Plant energy budget	-	-	-	-	-	-	660	99	759	759	-	-	-	-	-	-	-	-	-	-
3b.4.8	NRC Fees	-	-	-	-	-	-	107	11	118	118	-	-	-	-	-	-	-	-	-	-
3b.4.9	Indirect Overhead	-	-	-	-	-	-	816	122	938	938	-	-	-	-	-	-	-	-	-	-
3b.4.10	Security Staff Cost	-	-	-	-	-	-	1,107	166	1,272	1,272	-	-	-	-	-	-	-	-	-	32,500
3b.4.11	Utility Staff Cost	-	-	-	-	-	-	7,518	1,128	8,646	8,646	-	-	-	-	-	-	-	-	-	136,240
3b.4	Subtotal Period 3b Period-Dependent Costs	27	431	4	4	-	11	10,370	1,637	12,484	12,484	-	-	-	261	-	-	-	5,214	9	168,740
3b.0	TOTAL PERIOD 3b COST	910	1,431	4	4	-	11	11,633	2,109	16,102	16,821	-	282	-	261	-	-	-	5,214	9	182,540
PERIOD 3 TOTALS		910	2,269	13	11	-	31	35,739	5,059	45,031	44,591	-	440	-	741	-	-	-	14,826	8,194	482,421
PERIOD 4a - Large Component Removal																					
Period 4a Direct Decommissioning Activities																					
Nuclear Steam Supply System Removal																					
4a.1.1.1	Reactor Coolant Piping	28	136	16	18	120	127	-	102	545	545	-	-	483	483	-	-	-	111,944	3,930	-
4a.1.1.2	Pressurizer Relief Tank	3	10	0	3	23	23	-	14	79	79	-	-	54	54	-	-	-	20,849	333	-
4a.1.1.3	Reactor Coolant Pumps & Motors	22	69	40	267	143	2,312	-	675	3,548	3,548	-	-	498	8,997	-	-	-	824,989	4,062	-
4a.1.1.4	Pressurizer	6	45	324	-	-	1,177	-	341	1,894	1,894	-	-	-	1,847	-	-	-	107,604	1,796	-
4a.1.1.5	Steam Generators	25	1,817	-	760	-	11,288	-	3,470	18,031	18,031	-	-	-	12,866	-	-	-	1,810,770	10,264	750
4a.1.1.6	Retired Steam Generator Units	-	-	671	760	-	11,288	-	3,003	15,722	15,722	-	-	-	12,866	-	-	-	1,810,770	5,400	750
4a.1.1.7	CRDMs/Clas/Service Structure Removal	24	72	235	62	31	134	-	101	660	660	-	-	374	3,053	-	-	-	75,534	2,221	-
4a.1.1.8	Reactor Vessel Internals	55	1,825	3,050	260	-	4,823	158	4,967	14,568	14,568	-	-	-	1,263	751	517	-	284,435	18,883	887
4a.1.1.9	Vessel & Internals GTCC Disposal	-	-	-	-	-	9,149	-	1,462	11,212	11,212	-	-	-	-	-	-	440	79,646	-	-
4a.1.1.10	Reactor Vessel	-	3,899	913	85	-	6,647	158	8,523	18,236	18,236	-	-	-	6,862	2,573	-	-	961,005	18,883	887
4a.1.1	Totals	162	7,674	6,929	2,273	318	47,369	317	20,258	84,494	84,494	-	-	1,449	48,331	3,325	517	440	6,086,948	65,763	3,275
Removal of Major Equipment																					
4a.1.2	Main Turbine/Generator	-	263	175	28	785	-	-	202	1,434	1,434	-	-	4,020	-	-	-	-	341,722	6,563	-
4a.1.3	Main Condensers	-	802	91	14	835	-	-	292	1,733	1,733	-	-	5,310	-	-	-	-	238,534	20,501	-
Cascading Costs from Clean Building Demolition																					
4a.1.4.1	Reactor Building	-	710	-	-	-	-	-	106	816	816	-	-	-	-	-	-	-	-	8,379	-
4a.1.4.2	Auxiliary Building	-	129	-	-	-	-	-	19	143	143	-	-	-	-	-	-	-	-	1,898	-
4a.1.4.3	Hot Machine Shop(common)	-	6	-	-	-	-	-	1	7	7	-	-	-	-	-	-	-	-	102	-
4a.1.4.4	Interim Radwaste Building(common)	-	22	-	-	-	-	-	3	26	26	-	-	-	-	-	-	-	-	441	-
4a.1.4.5	Radwaste Facility(common)	-	207	-	-	-	-	-	31	239	239	-	-	-	-	-	-	-	-	2,577	-
4a.1.4.6	Service Building(common)	-	12	-	-	-	-	-	2	14	14	-	-	-	-	-	-	-	-	226	-
4a.1.4.7	Turbine Building	-	163	-	-	-	-	-	24	187	187	-	-	-	-	-	-	-	-	2,866	-
4a.1.4.8	Fuel Building	-	80	-	-	-	-	-	14	106	106	-	-	-	-	-	-	-	-	1,250	-
4a.1.4	Totals	-	1,337	-	-	-	-	-	200	1,537	1,537	-	-	-	-	-	-	-	-	18,679	-



Table D-3  
Oconee Nuclear Station - Unit 3  
SAFSTOR Decommissioning Cost Estimate  
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Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Disposal of Plant Systems																					
4a.1.5.1	Auxiliary Steam (shared)	-	270	-	-	-	-	-	40	310	-	-	310	-	-	-	-	-	-	8,509	-
4a.1.5.2	Auxiliary Steam (shared) RCA	-	103	-	3	113	-	-	43	263	263	-	-	1,242	-	-	-	-	50,422	2,373	-
4a.1.5.3	Carbon Dioxide (shared)	-	5	-	-	-	-	-	1	5	-	-	5	-	-	-	-	-	-	139	-
4a.1.5.4	Carbon Dioxide (shared) RCA	-	12	0	0	10	-	-	5	29	29	-	-	131	-	-	-	-	5,337	270	-
4a.1.5.5	Chemical Addition	-	27	-	-	-	-	-	4	31	-	-	31	-	-	-	-	-	-	821	-
4a.1.5.6	Chemical Addition RCA	-	22	0	-	26	-	-	9	52	52	-	-	222	-	-	-	-	9,016	501	-
4a.1.5.7	Chilled Water (shared)	-	134	-	-	-	-	-	20	154	-	-	154	-	-	-	-	-	-	4,175	-
4a.1.5.8	Condensate	-	529	-	-	-	-	-	79	609	-	-	609	-	-	-	-	-	-	15,699	-
4a.1.5.9	Condensate (Contaminated)	-	636	39	71	2,764	-	-	561	3,961	3,961	-	-	30,383	-	-	-	-	1,233,881	13,466	-
4a.1.5.10	Condenser Circulating Water	-	338	-	-	-	-	-	51	389	-	-	389	-	-	-	-	-	-	10,040	-
4a.1.5.11	Demineralized Water (shared)	-	134	-	-	-	-	-	20	154	-	-	154	-	-	-	-	-	-	4,267	-
4a.1.5.12	Demineralized Water (shared) RCA	-	78	1	2	10	-	-	31	186	186	-	-	809	-	-	-	-	32,816	1,792	-
4a.1.5.13	Diesel Air (shared)	-	43	-	-	-	-	-	6	49	-	-	49	-	-	-	-	-	-	1,367	-
4a.1.5.14	Diesel Jacket Water (shared)	-	3	-	-	-	-	-	0	4	-	-	4	-	-	-	-	-	-	96	-
4a.1.5.15	Diesel Lube Oil (shared)	-	11	-	-	-	-	-	2	13	-	-	13	-	-	-	-	-	-	346	-
4a.1.5.16	Electro Hydraulic Turbine Control	-	18	-	-	-	-	-	3	20	-	-	20	-	-	-	-	-	-	499	-
4a.1.5.17	Equipment Cooling (shared)	-	89	-	-	-	-	-	13	102	-	-	102	-	-	-	-	-	-	2,728	-
4a.1.5.18	Essential Siphon Vacuum (shared)	-	85	-	-	-	-	-	13	97	-	-	97	-	-	-	-	-	-	2,549	-
4a.1.5.19	Feedwater & Emergency Feedwater	-	163	-	-	-	-	-	24	187	-	-	187	-	-	-	-	-	-	4,662	-
4a.1.5.20	Feedwater & Emergency Feedwater (Cont.)	-	148	6	11	443	-	-	106	715	715	-	-	4,873	-	-	-	-	197,806	3,763	-
4a.1.5.21	Feedwater & Emergency Feedwater RCA	-	237	6	11	438	-	-	127	820	820	-	-	4,815	-	-	-	-	195,560	5,531	-
4a.1.5.22	Filtered Water (shared)	-	98	-	-	-	-	-	15	113	-	-	113	-	-	-	-	-	-	2,925	-
4a.1.5.23	Filtered Water (shared) RCA	-	72	1	2	89	-	-	32	196	196	-	-	975	-	-	-	-	39,690	1,692	-
4a.1.5.24	Heater Drains	-	1,296	33	97	2,707	-	-	909	6,123	6,123	-	-	41,409	-	-	-	-	1,681,649	32,320	-
4a.1.5.25	Heater Drains (Contaminated)	-	81	-	-	-	-	-	12	93	-	-	93	-	-	-	-	-	-	2,239	-
4a.1.5.26	Heater Vent	-	31	-	-	-	-	-	5	36	-	-	36	-	-	-	-	-	-	1,002	-
4a.1.5.27	High Pressure Extraction	-	24	-	-	-	-	-	4	27	-	-	27	-	-	-	-	-	-	729	-
4a.1.5.28	High Pressure Service Water (shared)	-	101	-	-	-	-	-	15	116	-	-	116	-	-	-	-	-	-	3,016	-
4a.1.5.29	Hydraulic Oil	-	2	-	-	-	-	-	0	3	-	-	3	-	-	-	-	-	-	75	-
4a.1.5.30	Hydrogen	-	28	-	-	-	-	-	4	32	-	-	32	-	-	-	-	-	-	648	-
4a.1.5.31	Hydrogen Seal Oil	-	29	-	-	-	-	-	4	33	-	-	33	-	-	-	-	-	-	899	-
4a.1.5.32	Keowee Decompressing Air (shared)	-	5	-	-	-	-	-	1	6	-	-	6	-	-	-	-	-	-	153	-
4a.1.5.33	Low Pressure Extraction	-	36	-	-	-	-	-	5	41	-	-	41	-	-	-	-	-	-	1,096	-
4a.1.5.34	Low Pressure Service Water (shared)	-	303	-	-	-	-	-	45	348	-	-	348	-	-	-	-	-	-	9,404	-
4a.1.5.35	Main Steam	-	84	-	-	-	-	-	13	97	-	-	97	-	-	-	-	-	-	2,558	-
4a.1.5.36	Main Steam RCA	-	304	-	55	2,530	-	-	469	3,406	3,406	-	-	27,868	-	-	-	-	1,129,284	7,693	-
4a.1.5.37	Nitrogen (shared)	-	47	-	-	-	-	-	7	54	-	-	54	-	-	-	-	-	-	1,501	-
4a.1.5.38	Nitrogen (shared) RCA	-	66	1	1	46	-	-	24	140	140	-	-	534	-	-	-	-	21,704	1,447	-
4a.1.5.39	Periodic Testing (shared)	-	14	-	-	-	-	-	2	16	-	-	16	-	-	-	-	-	-	429	-
4a.1.5.40	Plant Heating Steam (shared)	-	213	-	-	-	-	-	32	245	-	-	245	-	-	-	-	-	-	6,722	-
4a.1.5.41	Post Accident Monitoring	-	29	1	1	-	-	-	13	80	80	-	-	401	-	-	-	-	16,304	785	-
4a.1.5.42	Reactor Building Spray	-	88	3	5	114	-	-	52	339	339	-	-	2,105	-	-	-	-	85,488	2,150	-
4a.1.5.43	Reactor Cooling Water	-	182	-	-	-	-	-	27	209	-	-	209	-	-	-	-	-	-	5,947	-
4a.1.5.44	Reactor Cooling Water RCA	-	122	2	1	157	-	-	55	341	341	-	-	1,727	-	-	-	-	70,146	2,867	-
4a.1.5.45	Sample Monitoring	-	89	-	-	-	-	-	49	270	270	-	-	488	312	-	-	-	47,870	2,704	-
4a.1.5.46	Second Side Cool Treatment Pond (shared)	-	27	-	-	-	-	-	6	43	-	-	43	-	-	-	-	-	-	1,108	-
4a.1.5.47	Service Air (shared)	-	36	-	-	-	-	-	6	45	-	-	45	-	-	-	-	-	-	1,254	-
4a.1.5.48	Standby Shutdown Facility (shared)	-	27	-	-	-	-	-	4	31	-	-	31	-	-	-	-	-	-	841	-
4a.1.5.49	Stator Coolant	-	49	-	-	-	-	-	7	56	-	-	56	-	-	-	-	-	-	1,507	-
4a.1.5.50	Steam Drain	-	81	-	-	-	-	-	12	93	-	-	93	-	-	-	-	-	-	2,668	-
4a.1.5.51	Steam Seal	-	48	-	-	48	-	-	19	118	118	-	-	533	-	-	-	-	21,648	1,150	-
4a.1.5.52	Turbine Oil	-	121	-	-	-	-	-	18	139	-	-	139	-	-	-	-	-	-	3,518	-
4a.1.5.53	Vacuum	-	114	-	-	-	-	-	17	131	-	-	131	-	-	-	-	-	-	3,438	-
4a.1.5	Totals	-	6,843	107	183	67	57	-	3,042	21,169	17,038	-	4,131	118,467	312	-	-	-	4,838,620	190,087	-
4a.1.6	Scaffolding in support of decommissioning	-	617	4	-	15	2	-	178	830	830	-	-	771	48	-	-	-	35,988	20,107	-

**'fable D-3**

*TLM:Sem:No\$, true.*

Table D-3  
Oconee Nuclear Station - Unit 3  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet	Burial / Processed Wt., Lbs.	Craft Manhours	Utility and Contractor Manhours
Disposal of Plant Systems (continued)																					
4b.1.2.27	Plant Drinking Water (shared)	-	131	-	-	-	-	-	20	151	-	-	151	-	-	-	-	-	-	4,204	-
4b.1.2.28	Plant Heating Steam (shared) RCA	-	108	-	2	91	-	-	41	245	245	-	-	1,005	-	-	-	-	40,799	2,472	-
4b.1.2.29	Purge	-	149	-	11	440	-	-	106	712	712	-	-	4,842	-	-	-	-	196,641	3,591	-
4b.1.2.30	RFS Refueling Water	-	40	-	1	51	-	-	18	111	111	-	-	562	-	-	-	-	22,828	929	-
4b.1.2.31	Radiation Instrument Alarm	-	11	-	-	-	-	-	2	13	-	-	13	-	-	-	-	-	-	323	-
4b.1.2.32	Radiation Instrument Alarm RCA	-	29	0	0	6	-	-	8	42	42	-	-	63	-	-	-	-	2,565	788	-
4b.1.2.33	Reactor Building Cooling	-	345	25	44	1,705	-	-	351	2,471	2,471	-	-	18,745	-	-	-	-	761,247	9,761	-
4b.1.2.34	Reactor Coolant	-	206	18	17	66	108	-	93	508	508	-	-	723	553	-	-	-	78,966	5,353	-
4b.1.2.35	Reactor Coolant Storage	-	440	40	54	350	319	-	254	1,457	1,457	-	-	3,648	1,804	-	-	-	302,444	10,919	-
4b.1.2.36	Reactor Coolant Treatment (shared)	-	135	13	14	65	84	-	88	379	379	-	-	709	462	-	-	-	67,419	3,205	-
4b.1.2.37	Resin Recovery (shared)	-	478	45	65	338	388	-	284	1,607	1,607	-	-	3,720	2,170	-	-	-	333,418	11,897	-
4b.1.2.38	Sanitary Waste (shared)	-	70	-	-	-	-	-	10	80	-	-	80	-	-	-	-	-	-	2,135	-
4b.1.2.39	Sanitary Waste (shared) RCA	-	33	0	1	29	-	-	13	76	76	-	-	320	-	-	-	-	12,994	765	-
4b.1.2.40	Service Air (shared) RCA	-	76	-	2	80	-	-	26	167	167	-	-	662	-	-	-	-	26,884	1,633	-
4b.1.2.41	Solidification (shared)	-	836	88	111	405	714	-	474	2,628	2,628	-	-	4,455	3,724	-	-	-	508,293	20,176	-
4b.1.2.42	Spent Fuel Cooling	-	448	34	54	509	291	-	273	1,609	1,609	-	-	5,595	1,503	-	-	-	360,682	11,130	-
4b.1.2.43	Vehicle Fuel	-	8	-	-	-	-	-	1	11	-	-	11	-	-	-	-	-	-	303	-
4b.1.2.44	Ventilation (clean)	-	189	-	-	-	-	-	28	217	-	-	217	-	-	-	-	-	-	5,848	-
4b.1.2.45	Ventilation (clean) RCA	-	182	5	9	336	-	-	98	629	629	-	-	3,634	-	-	-	-	150,000	3,464	-
4b.1.2.46	Ventilation (contaminated)	-	519	16	25	809	51	-	270	1,693	1,693	-	-	8,891	262	-	-	-	384,549	11,565	-
4b.1.2	Totals	-	15,361	780	1,105	16,497	4,811	-	7,575	46,128	43,991	-	2,138	181,346	25,455	-	-	-	9,571,634	376,290	-
4b.1.3	Scaffolding in support of decommissioning	-	971	21	5	117	14	-	267	1,394	1,394	-	-	1,156	72	-	-	-	58,482	30,161	-
Decontamination of Site Buildings																					
4b.1.4.1	Reactor Building	875	667	171	254	424	947	-	860	3,998	3,998	-	-	4,658	10,211	-	-	-	894,565	31,331	-
4b.1.4.2	Auxiliary Building	314	105	29	42	64	60	-	217	831	831	-	-	707	1,637	-	-	-	141,352	10,135	-
4b.1.4.3	Contaminated Misc. Structures(common)	13	3	1	2	-	2	-	5	30	30	-	-	-	69	-	-	-	4,736	294	-
4b.1.4.4	Hot Machine Shop(common)	44	19	4	6	17	9	-	33	132	132	-	-	187	237	-	-	-	23,857	1,489	-
4b.1.4.5	Interim Radwaste Building(common)	89	28	8	12	15	17	-	61	230	230	-	-	189	473	-	-	-	39,310	2,635	-
4b.1.4.6	Radwaste Facility(common)	320	226	26	38	217	67	-	272	1,157	1,157	-	-	2,386	1,362	-	-	-	190,675	12,919	-
4b.1.4.7	Retired Steam Gen Storage Fac.(common)	74	17	1	2	2	2	-	40	127	127	-	-	16	63	-	-	-	5,069	2,060	-
4b.1.4.8	Turbine Building	197	31	5	8	-	11	-	106	349	349	-	-	-	314	-	-	-	21,708	5,530	-
4b.1.4.9	Fuel Building	227	252	5	7	118	11	-	199	818	818	-	-	1,293	108	-	-	-	64,185	11,316	-
4b.1.4	Totals	1,952	1,327	251	371	657	1,118	-	1,797	7,673	7,673	-	-	9,418	14,533	-	-	-	1,385,477	78,017	-
4b.1	Subtotal Period 4b Activity Costs	2,127	17,679	1,126	1,524	17,470	6,245	-	9,821	55,994	53,858	-	2,138	191,920	41,600	-	-	-	11,153,810	485,069	-
Period 4b Additional Costs																					
4b.2.1	Containment Paint Remediation	92	-	7	12	-	84	-	69	264	264	-	-	-	492	-	-	-	-	800	-
4b.2.2	License Termination Survey Management Program	-	-	-	-	-	-	616	165	801	801	-	-	-	-	-	-	-	-	-	6,240
4b.2.3	ISFSI License Termination	-	2,395	12	31	-	1,628	1,252	1,208	6,585	-	6,585	-	-	9,342	-	-	-	1,815,475	47,563	2,590
4b.2	Subtotal Period 4b Additional Costs	92	2,395	19	103	-	1,711	1,868	1,482	7,650	1,065	6,585	-	-	9,794	-	-	-	1,815,475	48,363	8,830
Period 4b Collateral Costs																					
4b.3.1	Process liquid waste	57	-	27	80	-	118	-	73	355	355	-	-	-	455	-	-	-	27,270	89	-
4b.3.2	Small tool allowance	-	366	-	-	-	-	-	55	420	420	-	-	-	-	-	-	-	-	-	-
4b.3.3	Decommissioning Equipment Disposition	-	-	108	29	605	73	-	124	940	940	-	-	6,000	373	-	-	-	303,507	88	-
4b.3.4	Survey and Release of Scrap Metal	-	-	-	-	-	-	879	101	771	771	-	-	-	-	-	-	-	-	-	-
4b.3	Subtotal Period 4b Collateral Costs	57	366	135	109	605	191	679	352	2,486	2,486	-	-	6,000	828	-	-	-	330,777	177	-
Period 4b Period-Dependent Costs																					
4b.4.1	Decon supplies	1,142	-	-	-	-	-	-	285	1,428	1,428	-	-	-	-	-	-	-	-	-	-
4b.4.2	Insurance	-	-	-	-	-	-	571	57	629	629	-	-	-	-	-	-	-	-	-	-
4b.4.3	Property taxes	-	-	-	-	-	-	12	1	13	13	-	-	-	-	-	-	-	-	-	-
4b.4.4	Health physics supplies	-	3,050	-	-	-	-	-	763	3,813	3,813	-	-	-	-	-	-	-	-	-	-

Table D-3  
Oconee Nuclear Station - Unit 3  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes			GTCC Cu. Feet	Burial / Processed Wt. Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet				
Period 4b Period-Dependent Costs (continued)																					
4b.4.5	Heavy equipment rental	-	3,896	-	-	-	-	-	564	4,460	4,460	-	-	-	-	-	-	-	-	-	-
4b.4.6	Disposal of DAW generated	-	-	120	101	-	300	-	102	623	623	-	-	-	7,111	-	-	-	142,210	259	-
4b.4.7	Plant energy budget	-	-	-	-	-	-	1,771	266	2,036	2,036	-	-	-	-	-	-	-	-	-	-
4b.4.8	NRC Fees	-	-	-	-	-	-	804	80	884	884	-	-	-	-	-	-	-	-	-	-
4b.4.9	Liquid Radwaste Processing Equipment/Services	-	-	-	-	-	-	669	100	769	769	-	-	-	-	-	-	-	-	-	-
4b.4.10	Indirect Overhead	-	-	-	-	-	-	3,875	381	4,456	4,456	-	-	-	-	-	-	-	-	-	-
4b.4.11	Security Staff Cost	-	-	-	-	-	-	3,958	584	4,552	4,552	-	-	-	-	-	-	-	-	-	116,250
4b.4.12	Utility Staff Cost	-	-	-	-	-	-	37,062	5,559	42,621	42,621	-	-	-	-	-	-	-	-	-	647,290
4b.4	Subtotal Period 4b Period-Dependent Costs	1,142	6,946	120	101	-	300	48,721	9,973	66,304	66,304	-	-	-	7,111	-	-	-	142,210	259	763,530
4b.0	TOTAL PERIOD 4b COST	3,418	27,385	1,404	1,837	18,075	5,447	51,259	20,609	132,434	123,711	6,585	2,138	197,920	59,333	-	-	-	13,442,270	533,868	772,330
PERIOD 4e - License Termination																					
Period 4e Direct Decommissioning Activities																					
4e.1.1	ORISE confirmatory survey	-	-	-	-	-	-	150	45	195	195	-	-	-	-	-	-	-	-	-	-
4e.1.2	Terminate license	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4e.1	Subtotal Period 4e Activity Costs	-	-	-	-	-	-	150	45	195	195	-	-	-	-	-	-	-	-	-	-
Period 4e Additional Costs																					
4e.2.1	License Termination Survey	-	-	-	-	-	-	6,849	2,055	8,904	8,904	-	-	-	-	-	-	-	-	171,046	3,120
4e.2	Subtotal Period 4e Additional Costs	-	-	-	-	-	-	6,849	2,055	8,904	8,904	-	-	-	-	-	-	-	-	171,046	3,120
Period 4e Period-Dependent Costs																					
4e.4.1	Insurance	-	-	-	-	-	-	-	0	-	-	-	-	-	-	-	-	-	-	-	-
4e.4.2	Property taxes	-	-	-	-	-	-	5	-	5	5	-	-	-	-	-	-	-	-	-	-
4e.4.3	Health physics supplies	-	1,033	-	-	-	-	-	251	1,254	1,254	-	-	-	-	-	-	-	-	-	-
4e.4.4	Disposal of DAW generated	-	-	6	5	-	15	-	5	30	30	-	-	-	344	-	-	-	6,882	13	-
4e.4.5	Plant energy budget	-	-	-	-	-	-	199	30	229	229	-	-	-	-	-	-	-	-	-	-
4e.4.6	NRC Fees	-	-	-	-	-	-	354	35	389	389	-	-	-	-	-	-	-	-	-	-
4e.4.7	Indirect Overhead	-	-	-	-	-	-	726	109	835	835	-	-	-	-	-	-	-	-	-	-
4e.4.8	Security Staff Cost	-	-	-	-	-	-	709	106	815	815	-	-	-	-	-	-	-	-	-	18,789
4e.4.9	Utility Staff Cost	-	-	-	-	-	-	7,580	1,137	8,717	8,717	-	-	-	-	-	-	-	-	-	121,343
4e.4	Subtotal Period 4e Period-Dependent Costs	-	1,033	6	5	-	15	9,572	1,674	12,274	12,274	-	-	-	344	-	-	-	6,882	13	140,131
4e.0	TOTAL PERIOD 4e COST	-	1,033	6	5	-	15	16,571	3,773	21,372	21,372	-	-	-	344	-	-	-	6,882	171,059	143,251
PERIOD 4 TOTALS		3,650	50,172	7,843	4,525	30,546	56,065	94,865	53,396	301,093	288,212	6,585	6,295	327,927	112,144	3,325	517	440	25,076,190	1,026,789	1,328,992
PERIOD 5b - Site Restoration																					
Period 5b Direct Decommissioning Activities																					
Demolition of Remaining Site Buildings																					
5b.1.1.1	Reactor Building	-	4,114	-	-	-	-	-	617	4,731	-	-	4,731	-	-	-	-	-	-	53,465	-
5b.1.1.2	Administration Building (common)	-	117	-	-	-	-	-	18	135	-	-	135	-	-	-	-	-	-	2,539	-
5b.1.1.3	Auxiliary Building	-	1,121	-	-	-	-	-	168	1,289	-	-	1,289	-	-	-	-	-	-	17,079	-
5b.1.1.4	Clean Misc. Site Structures (common)	-	5,931	-	-	-	-	-	890	6,821	-	-	6,821	-	-	-	-	-	-	53,210	-
5b.1.1.5	Condenser Discharge Structure (common)	-	299	-	-	-	-	-	45	342	-	-	342	-	-	-	-	-	-	2,541	-
5b.1.1.6	Contaminated Misc. Structures (common)	-	20	-	-	-	-	-	3	24	-	-	24	-	-	-	-	-	-	467	-
5b.1.1.7	Contract Services Building (common)	-	146	-	-	-	-	-	22	168	-	-	168	-	-	-	-	-	-	3,048	-
5b.1.1.8	Essential Siphon Vacuum Bldg. (common)	-	30	-	-	-	-	-	4	34	-	-	34	-	-	-	-	-	-	604	-
5b.1.1.9	Hot Machine Shop (common)	-	108	-	-	-	-	-	16	124	-	-	124	-	-	-	-	-	-	1,935	-
5b.1.1.10	Intake Structure (common)	-	3,335	-	-	-	-	-	500	3,836	-	-	3,836	-	-	-	-	-	-	45,036	-
5b.1.1.11	Interim Radwaste Building (common)	-	446	-	-	-	-	-	67	513	-	-	513	-	-	-	-	-	-	9,013	-
5b.1.1.12	Maintenance Support Building (common)	-	130	-	-	-	-	-	20	150	-	-	150	-	-	-	-	-	-	2,583	-

Table D-3  
Oconee Nuclear Station - Unit 3  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt. Lbs.	Craft Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			
Demolition of Remaining Site Buildings (continued)																					
Sb. 1.1.13	Miscellaneous Site Foundations (common)	-	736	-	-	-	-	-	110	846	-	-	846	-	-	-	-	-	-	9,686	-
Sb. 1.1.14	Radwaste Facility (common)	-	1,867	-	-	-	-	-	280	2,147	-	-	2,147	-	-	-	-	-	-	23,191	-
Sb. 1.1.15	Retired Steam Gen Storage Facility (common)	-	655	-	-	-	-	-	98	754	-	-	754	-	-	-	-	-	-	11,110	-
Sb. 1.1.16	Service Building (common)	-	281	-	-	-	-	-	42	323	-	-	323	-	-	-	-	-	-	6,113	-
Sb. 1.1.17	Standby Shutdown Facility (common)	-	492	-	-	-	-	-	74	566	-	-	566	-	-	-	-	-	-	6,550	-
Sb. 1.1.18	Switchgear Enclosure (common)	-	113	-	-	-	-	-	17	129	-	-	129	-	-	-	-	-	-	1,911	-
Sb. 1.1.19	Switchgear House (common)	-	57	-	-	-	-	-	9	66	-	-	66	-	-	-	-	-	-	819	-
Sb. 1.1.20	Technical Support Building (common)	-	40	-	-	-	-	-	7	56	-	-	56	-	-	-	-	-	-	1,034	-
Sb. 1.1.21	Turbine Building	-	1,581	-	-	-	-	-	237	1,818	-	-	1,818	-	-	-	-	-	-	29,771	-
Sb. 1.1.22	Turbine Pedestal	-	415	-	-	-	-	-	62	478	-	-	478	-	-	-	-	-	-	5,015	-
Sb. 1.1.23	Fuel Building	-	969	-	-	-	-	-	130	999	-	-	999	-	-	-	-	-	-	12,284	-
Sb. 1.1	Totals	-	22,912	-	-	-	-	-	3,437	26,349	-	-	26,349	-	-	-	-	-	-	328,003	-
Site Closeout Activities																					
Sb. 1.2	Backfill Site	-	2,606	-	-	-	-	-	340	2,606	-	-	2,606	-	-	-	-	-	-	8,357	-
Sb. 1.3	Grade & landscape site	-	119	-	-	-	-	-	18	137	-	-	137	-	-	-	-	-	-	288	-
Sb. 1.4	Final report to NRC	-	-	-	-	-	-	61	9	70	70	-	-	-	-	-	-	-	-	-	668
Sb. 1	Subtotal Period 5b Activity Costs	-	25,297	-	-	-	-	81	3,804	29,162	70	-	29,092	-	-	-	-	-	-	336,649	668
Period 5b Additional Costs																					
Sb. 2.1	Concrete Crushing	-	819	-	-	-	-	5	124	947	-	-	947	-	-	-	-	-	-	4,168	-
Sb. 2.2	ISFSI Demolition and Restoration	-	990	-	-	-	-	39	154	1,183	-	1,183	-	-	-	-	-	-	-	7,678	160
Sb. 2	Subtotal Period 5b Additional Costs	-	1,809	-	-	-	-	44	278	2,130	-	1,183	947	-	-	-	-	-	-	11,846	160
Period 5b Collateral Costs																					
Sb. 3.1	Small tool allowance	-	248	-	-	-	-	-	37	285	-	-	285	-	-	-	-	-	-	-	-
Sb. 3	Subtotal Period 5b Collateral Costs	-	248	-	-	-	-	-	37	285	-	-	285	-	-	-	-	-	-	-	-
Period 5b Period-Dependent Costs																					
Sb. 4.1	Insurance	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sb. 4.2	Property taxes	-	-	-	-	-	-	15	2	17	-	-	17	-	-	-	-	-	-	-	-
Sb. 4.3	Heavy equipment rental	-	6,792	-	-	-	-	-	1,019	7,811	-	-	7,811	-	-	-	-	-	-	-	-
Sb. 4.4	Plant energy budget	-	-	-	-	-	-	307	46	353	-	-	353	-	-	-	-	-	-	-	-
Sb. 4.5	Indirect Overhead	-	-	-	-	-	-	1,463	219	1,683	1,683	-	-	-	-	-	-	-	-	-	-
Sb. 4.6	Security Staff Cost	-	-	-	-	-	-	2,190	329	2,519	-	-	2,519	-	-	-	-	-	-	-	58,080
Sb. 4.7	Utility Staff Cost	-	-	-	-	-	-	14,848	2,242	17,090	-	-	17,090	-	-	-	-	-	-	-	244,420
Sb. 4	Subtotal Period 5b Period-Dependent Costs	-	6,793	-	-	-	-	18,024	3,857	29,972	1,683	-	27,889	-	-	-	-	-	-	-	302,500
Sb. 0	TOTAL PERIOD 5b COST	-	34,146	-	-	-	-	19,029	7,975	61,150	1,753	1,183	58,214	-	-	-	-	-	-	348,495	303,328
PERIOD 5 TOTALS																					
		-	34,146	-	-	-	-	19,029	7,975	61,150	1,753	1,183	58,214	-	-	-	-	-	-	348,495	303,328
TOTAL COST TO DECOMMISSION																					
		8,852	95,503	8,316	5,410	30,581	59,604	345,014	100,478	653,737	518,504	68,473	66,760	329,047	160,922	3,325	517	440	25,947,360	1,491,133	4,569,645



Table D-3  
Oconee Nuclear Station - Unit 3  
SAFSTOR Decommissioning Cost Estimate  
(thousands of 2008 dollars)

Activity Index	Activity Description	Decon Cost	Removal Cost	Packaging Costs	Transport Costs	Off-Site Processing Costs	LLRW Disposal Costs	Other Costs	Total Contingency	Total Costs	NRC Lic. Term. Costs	Spent Fuel Management Costs	Site Restoration Costs	Processed Volume Cu. Feet	Burial Volumes				Burial / Processed Wt. Lbs.	Craft <sup>1</sup> Manhours	Utility and Contractor Manhours
															Class A Cu. Feet	Class B Cu. Feet	Class C Cu. Feet	GTCC Cu. Feet			

TOTAL COST TO DECOMMISSION WITH 18.16% CONTINGENCY:					\$653,737	thousands of 2008 dollars															
TOTAL NRC LICENSE TERMINATION COST IS 79.31% OR:					\$518,504	thousands of 2008 dollars															
SPENT FUEL MANAGEMENT COST IS 10.47% OR:					\$68,473	thousands of 2008 dollars															
NON-NUCLEAR DEMOLITION COST IS 10.21% OR:					\$66,760	thousands of 2008 dollars															
TOTAL LOW-LEVEL RADIOACTIVE WASTE VOLUME BURIED (EXCLUDING GTCC):					164,762	cubic feet															
TOTAL GREATER THAN CLASS C RADWASTE VOLUME GENERATED:					440	cubic feet															
TOTAL SCRAP METAL REMOVED:					66,351	tons															
TOTAL CRAFT LABOR REQUIREMENTS:					1,482,956	man-hours															

End Notes:  
n/a - indicates that this activity not charged as decommissioning expense  
a - indicates that this activity performed by decommissioning staff  
0 - indicates that this value is less than 0.5 but is non-zero  
a cell containing "-" indicates a zero value